



Illustrated Manual of Proposed Endangered and Threatened Plants of Utah



U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE



U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE



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ILLUSTRATED MANUAL OF PROPOSED
ENDANGERED AND THREATENED PLANTS OF UTAH

Submitted to
U.S. Fish & Wildlife Service
Denver Federal Center
Denver, Colorado

By
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Provo, Utah

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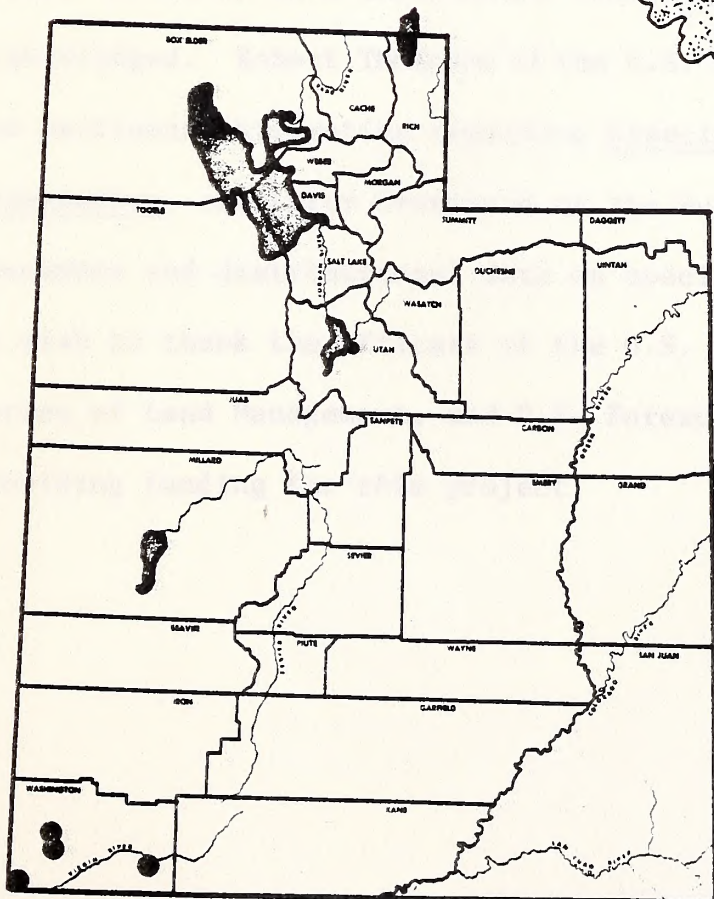
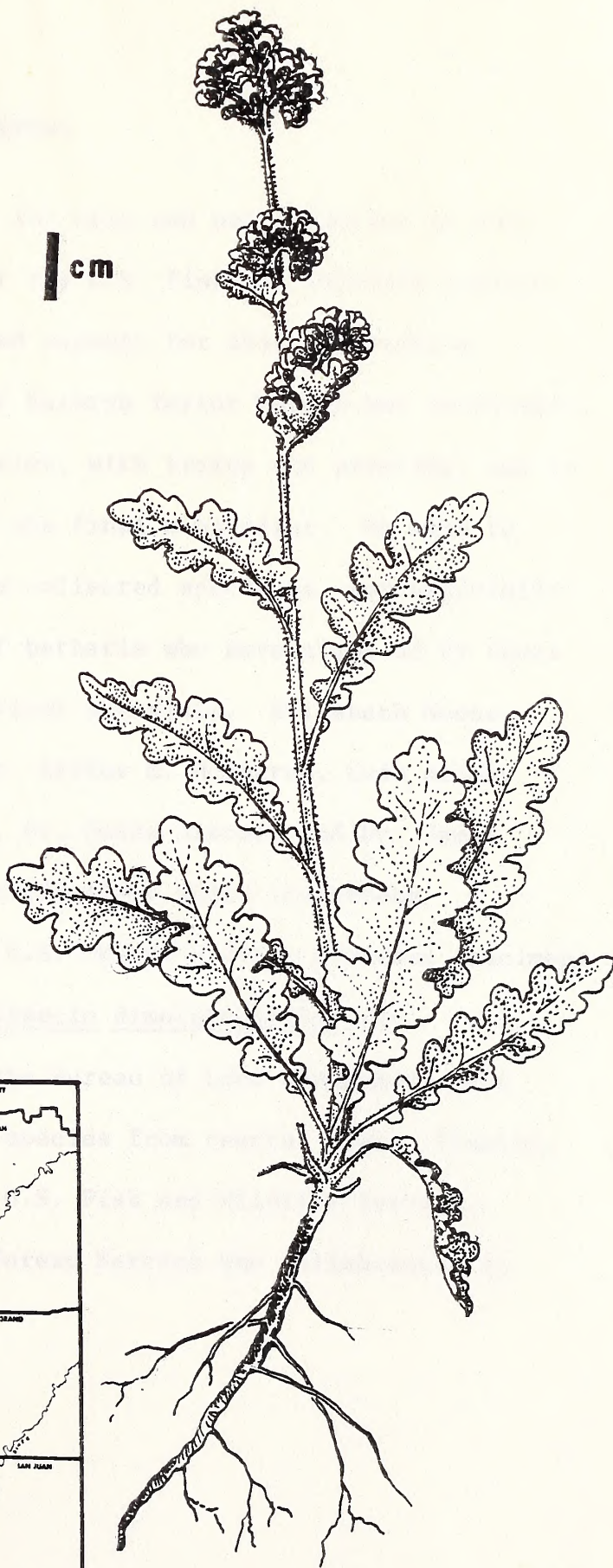
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Cover: Astragalus perianus Barneby

Phacelia anelsonii

1 cm



Acknowledgment

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D = Deleted (see appendix)
E = Endangered
T = Threatened

Introduction

This illustrated manual of proposed endangered and threatened plant species of Utah provides a ready means of identifying those plants proposed as endangered or reviewed as threatened under status review by the U.S. Fish and Wildlife Service (Federal Register) or recommended for inclusion by Stanley L. Welsh (Great Basin Naturalist 38: 1-18. 1978).

Scientific names and bibliographic citations are provided uniformly for each species. Where the species name in current use is based on an earlier name, the basionym is listed and its bibliographic citation is included also. Common names are selected from published accounts, where available. We have attempted to provide a reasonable common name in those instances where none has been available.

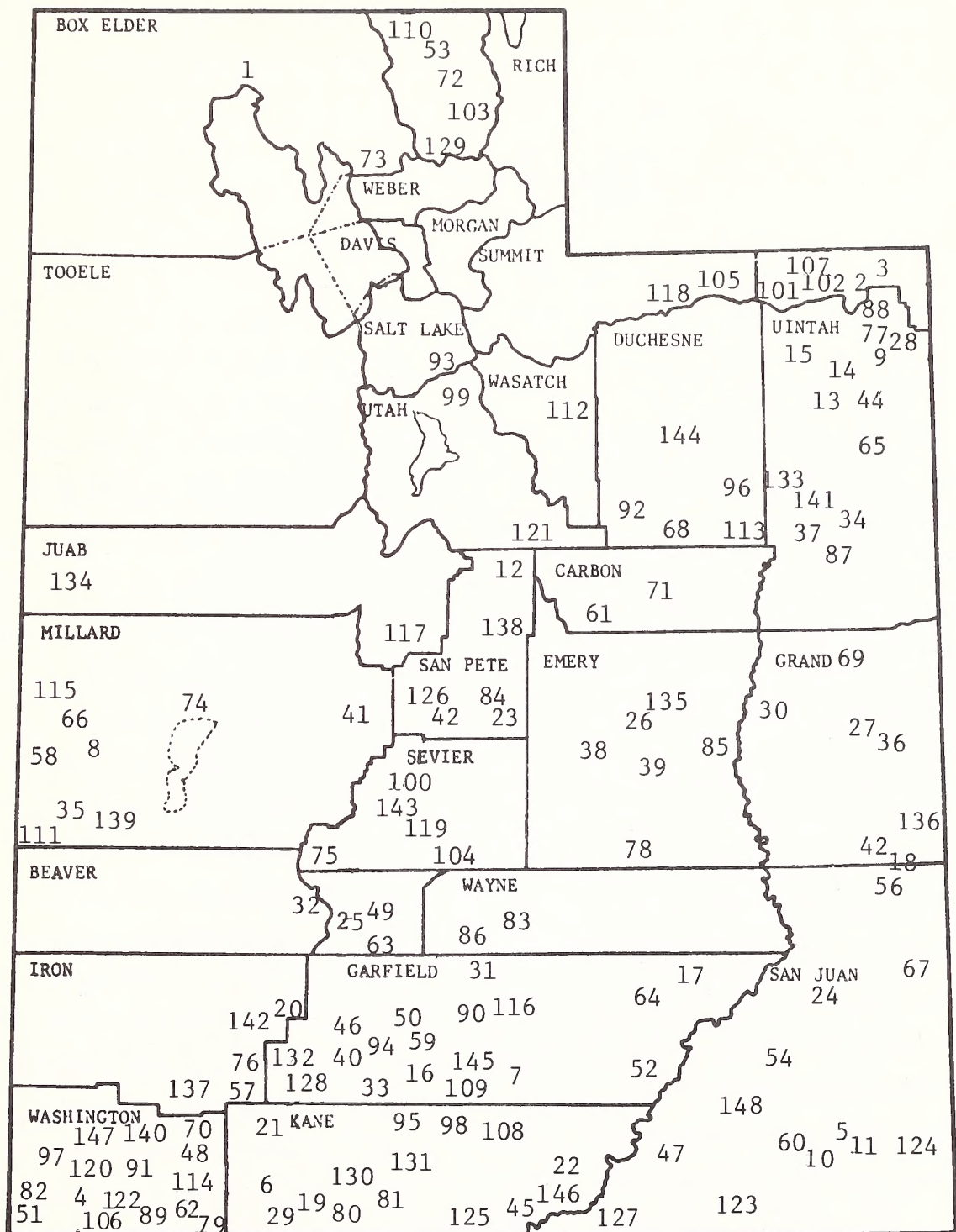
Known distribution is presented generally. Since most of the plant taxa are specifically adapted to a narrow range of habitat, habitat descriptions are included. This will aid individuals who find specimens that are suspected as belonging to endangered or threatened categories. Elevational range is provided in both feet and meters. The manual briefly describes identifying characteristics of each taxon. This should allow comparison of an unknown plant with the line illustration on each page.

Where a potential or existing threat to a given species is known, that information is presented, along with land ownership, remarks and recommendations.

Information presented in the manual has been taken from original

species descriptions, published papers and books, and from other sources not generally available to the public.

For current information on the legal, and therefore official, status of candidate threatened and endangered plants of Utah, one should consult the Endangered Species Botanist, U.S. Fish and Wildlife Service, Denver, Colorado.



Distribution map: Endangered and threatened plants of Utah

Map Index

Utah endangered and threatened plants

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var. *languida* (T)
3. *Arabis demissa*
var. *russeola* (T)
4. *Arctomecon humilis* (E)
5. *Asclepias cutleri* (T)
6. *Astragalus ampullarius* (T)
7. *Astragalus barnebyi* (T)
8. *Astragalus callithrix* (E)
9. *Astragalus chloodes* (T)
10. *Astragalus cottamii* (T)
11. *Astragalus cronquistii* (E)
12. *Astragalus desereticus* (E)
13. *Astragalus detritalis* (T)
14. *Astragalus duchesnensis* (T)
15. *Astragalus hamiltonii* (T)
16. *Astragalus harrisonii* (E)
17. *Astragalus henrimontanensis* (T)
18. *Astragalus iselyi* (E)
19. *Astragalus lancearius* (T)
20. *Astragalus lentiginosus*
var. *ursinus* (E)
21. *Astragalus limnocharis* (T)
22. *Astragalus malacoides* (T)
23. *Astragalus montii* (E)
24. *Astragalus monumentalis* (T)
25. *Astragalus perianus* (T)
26. *Astragalus raphaelensis* (T)
27. *Astragalus sabulosus* (T)
28. *Astragalus saurinus* (T)
29. *Astragalus striatiflorus* (T)
30. *Atriplex welshii* (T)
31. *Castilleja aquariensis* (E)
32. *Castilleja parvula* (T)
33. *Castilleja revealii* (E)
34. *Cryptantha barnebyi* (E)
35. *Cryptantha compacta* (T)
36. *Cryptantha elata* (T)
37. *Cryptantha grahamii* (T)
38. *Cryptantha johnstonii* (E)
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46. *Cymopterus minimus* (E)
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49. *Draba sobolifera* (T)
50. *Draba subalpina* (T)
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var. *purpureus* (E)
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53. *Erigeron cronquistii* (T)
54. *Erigeron kachinensis* (E)
55. *Erigeron maguirei* (E)
56. *Erigeron manicus* (T)
57. *Erigeron proselyticus* (E)
58. *Eriogonum ammophilum* (E)
59. *Eriogonum aretioides* (E)
60. *Eriogonum clavellatum* (T)
61. *Eriogonum corymbosum*
var. *davidsei* (E)
62. *Eriogonum corymbosum*
var. *matthewsiae* (E)
63. *Eriogonum corymbosum*
var. *revelianum* (T)
64. *Eriogonum cronquistii* (E)
65. *Eriogonum ephedroides* (T)
66. *Eriogonum eremicum* (T)
67. *Eriogonum humivagans* (E)
68. *Eriogonum hylophilum* (E)
69. *Eriogonum intermontanum* (E)
70. *Eriogonum jamesii*
var. *rupicola* (T)
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72. *Eriogonum loganum* (E)
73. *Eriogonum nanum* (T)
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75. *Eriogonum ostlundii* (T)
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var. *alpestre* (T)
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var. *thompsonae* (T)
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var. *zionis* (T)
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83. *Euphorbia nephradenia* (T)
84. *Festuca dasyclada* (E)
85. *Gaillardia flava* (T)
86. *Gilia caespitosa* (E)
87. *Glaucocarpum suffrutescens* (E)
88. *Hedysarum boreale*
var. *gremiale*
89. *Helianthus deserticola* (T)
90. *Heterotheca jonesii* (E)
91. *Hymenopappus filifolius*
var. *tomentosus* (T)
92. *Lepidium barnebyanum* (E)
93. *Lesquerella garrettii* (T)
94. *Lesquerella rubicundula* (T)
95. *Lesquerella tumulosa* (E)
96. *Lomatium latilobum* (T)
97. *Lupinus jonesii* (T)
98. *Machaeranthera glabriuscula*
var. *confertifolia* (T)
99. *Machaeranthera kingii* (T)
100. *Mentzelia argillosa*
101. *Mertensia viridis*
var. *cana* (T)
102. *Mertensia viridis*
var. *dilatata* (T)
103. *Musineon lineare* (T)
104. *Najas flexilis*
var. *caespitosa* (T)
105. *Parrya rydbergii* (T)
106. *Pediocactus sileri* (E)
107. *Penstemon acaulis* (T)
108. *Penstemon atwoodii* (T)
109. *Penstemon bracteatus* (T)
110. *Penstemon compactus* (T)
111. *Penstemon concinnus* (T)
112. *Penstemon garrettii* (E)
113. *Penstemon grahamii* (E)

114. *Penstemon humilis*
var. *obtusifolius* (T)
115. *Penstemon nanus* (T)
116. *Penstemon parvus* (T)
117. *Penstemon tidesstromii* (T)
118. *Penstemon uintahensis* (T)
119. *Penstemon wardii* (T)
120. *Phacelia anelsonii* (T)
121. *Phacelia argillacea* (E)
122. *Phacelia cephalotes* (T)
123. *Phacelia howelliana* (T)
124. *Phacelia indecora* (E)
125. *Phacelia mammillarensis* (E)
126. *Phacelia utahensis* (T)
127. *Phlox cluteana* (T)
128. *Phlox gladiformis* (T)
129. *Primula maguirei* (T)
130. *Psoralea epipsila* (E)
131. *Psoralea pariensis* (T)
132. *Ranunculus acrifolius*
var. *aestivalis* (E)
133. *Sclerocactus glaucus* (E)
134. *Sclerocactus pubispinus* (T)
135. *Sclerocactus wrightiae* (E)
136. *Senecio dimorphophyllus*
var. *intermedia* (T)
137. *Silene petersonii*
var. *minor* (T)
138. *Silene petersonii*
var. *petersonii* (T)
139. *Sphaeralcea caespitosa* (T)
140. *Sphaeromeria ruthiae*
141. *Thelypodopsis argillacea* (E)
142. *Thelypodium sagittatum*
var. *ovalifolium* (T)
143. *Townsendia aprica* (E)
144. *Townsendia mensana* (T)
145. *Townsendia minima* (T)
146. *Viguiera soliceps* (E)
147. *Viola purpurea*
var. *charlestonensis* (T)
148. *Zigadenus vaginatus* (T)

SCIENTIFIC NAME: Cymopterus coulteri (M. E. Jones) Mathias

FAMILY: Apiaceae

CITATION: Ann. Missouri Bot. Gard. 17: 382. 1930.

SYNONYMS: Cymopterus corrugatus M. E. Jones var. coulteri (M. E. Jones)
Mathias (Contr. W. Bot. 12: 19. 1908.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended
as threatened by S. L. Welsh, 1978.

COMMON NAME: Coulter biscuitroot

KNOWN DISTRIBUTION: Sanpete, Sevier, and Juab cos., Utah

HABITAT: Arapien Shale Formation, barren foothills, gravelly to clay soil;
black sagebrush and shadscale community

ELEVATION: 2000 to 5800 feet (610 to 1769 m)

DESCRIPTION: Plants perennial, acaulescent or subacaulescent with the
development of a pseudoscape, 0.4-1 dm high, glabrous; leaves ovate
in general outline, excluding the petiole, 1.5-4 cm long, bipinnatisect,
fleshy; peduncles usually slightly exceeding the leaves; umbels of
several unequal rays; involucre absent; involucre bractlets shorter
than the white flowers, subscarious, purple, linear, entire; fruit ovate-
oblong, 5-7 mm long, 3-4 mm wide, lateral wings present, dorsal wings
three, oil tubes showing in the intervals; seed face concave.

TAXONOMIC PROBLEMS: The Coulter biscuitroot is closely allied with C. globosus.

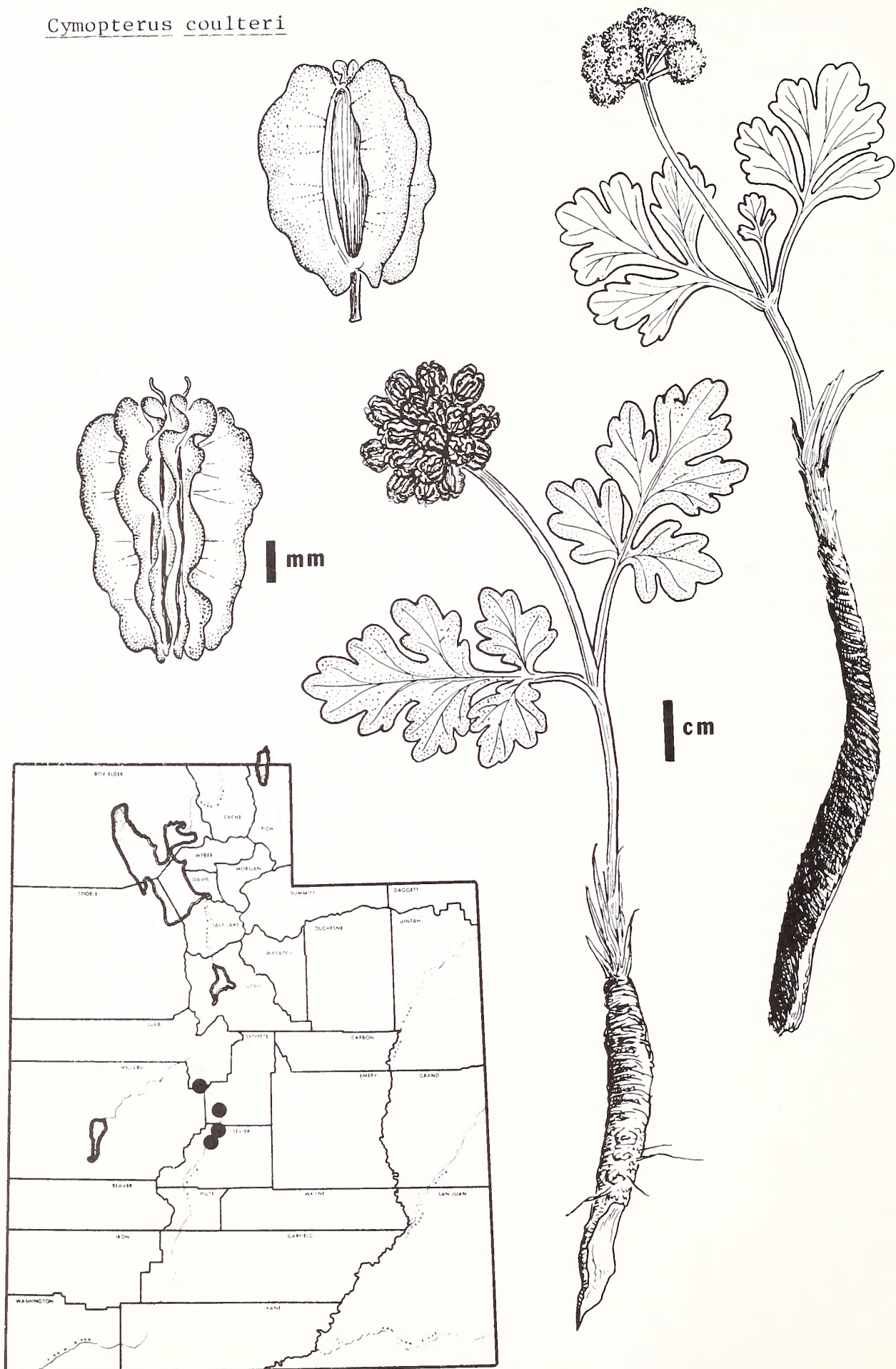
EXISTING OR POTENTIAL THREATS: Potential change in land use, mineral
exploration, and exploitation of gypsum are major threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; private

REMARKS: This species is poorly represented in collections, and might be
more common than information indicates presently.

RECOMMENDATIONS: This distinctive species should be regarded as threatened.

Cymopterus coulteri



SCIENTIFIC NAME: Cymopterus duchesnensis M. E. Jones

FAMILY: Apiaceae

CITATION: Contr. W. Bot. 13: 12. 1910.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Duchesne biscuitroot

KNOWN DISTRIBUTION: Duchesne and Uintah cos., Utah

HABITAT: Curtis, Duchesne River formations; loose rocks on southern slopes of mesas; salt desert shrub community

ELEVATION: 4800 to 5600 feet (1464 to 1708 m)

DESCRIPTION: Plants acaulescent or subcaulescent with an inconspicuous pseudoscape, 10-25 cm high, glabrous; leaves broadly ovate-oblong in general outline, excluding the petioles 3-9 cm long, 3-6.5 cm broad, pinnate or occasionally ternate; leaflets thin, pallid, glaucescent, cuneate to obovate, 15-40 mm long, 10-45 mm broad, ternately or quinate lobed and dentate at the apex; petioles 3-10 cm long; peduncles exceeding the leaves, 5-20 cm long; involucre wanting; involucl of several conspicuous, linear bractlets, usually exceeding flowers; pedicels 2-4 mm long; flowers yellow; fruit ovoid-oblong, 8-10 mm long, 5-8 mm wide, wings narrow at the base, about twice as wide as the body; seed face somewhat concave.

TAXONOMIC PROBLEMS: Similar to C. purpureus, C. duchesnensis has a distinctive winged seed and yellow flowers.

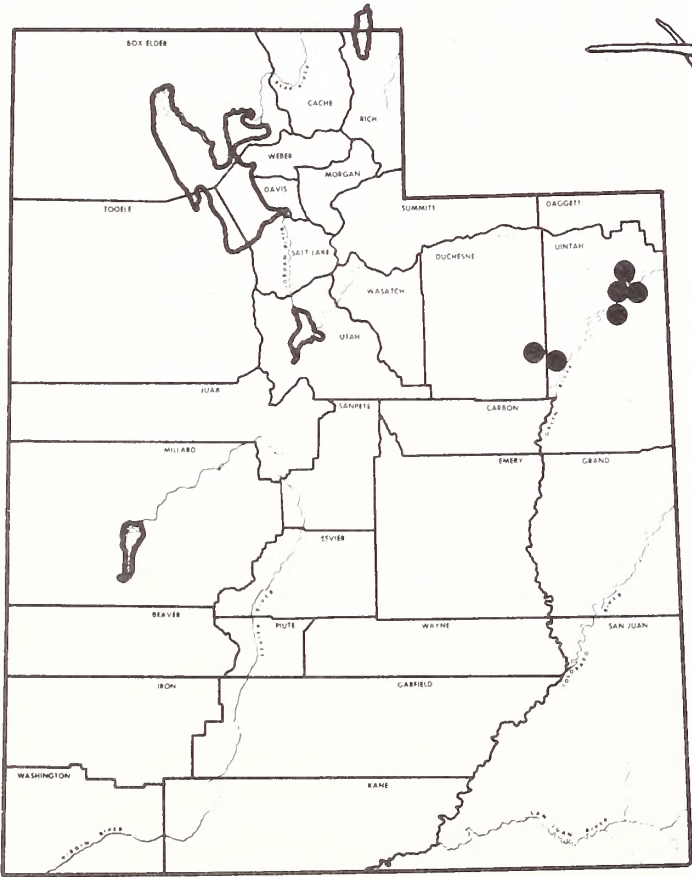
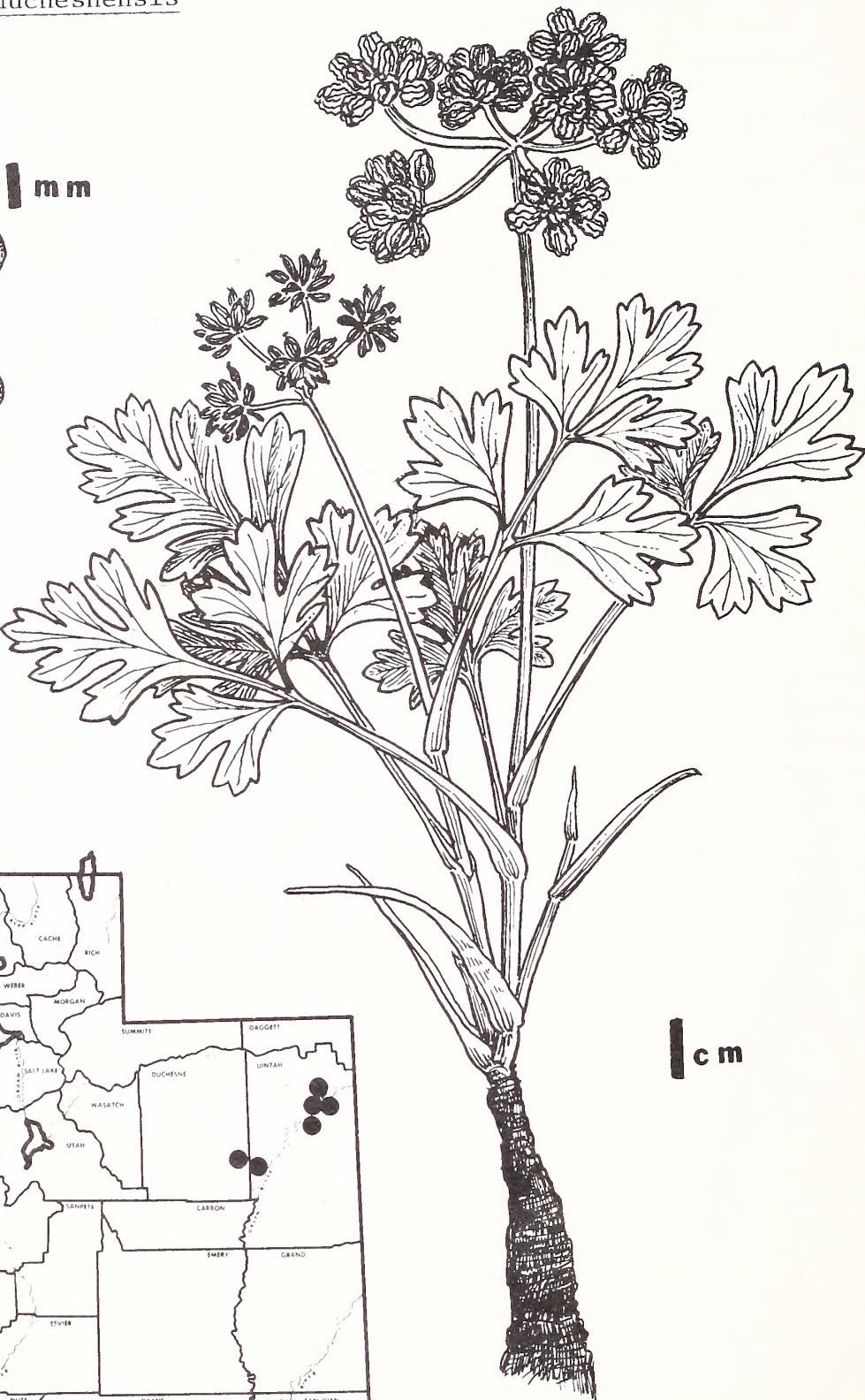
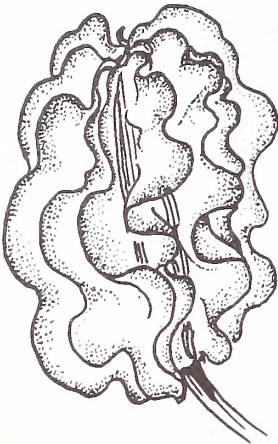
EXISTING OR POTENTIAL THREATS: Industrial expansion, mineral exploration and exploitation pose potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Private; Bureau of Land Management; National Park Service

REMARKS: Although rather widely distributed in Duchesne and Uintah counties, the populations are not large.

RECOMMENDATIONS: This plant should be regarded as threatened.

Cymopterus duchesnensis



SCIENTIFIC NAME: Cymopterus higginsii Welsh

FAMILY: Apiaceae

CITATION: Great Basin Naturalist 35: 377. 1976.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Higgins biscuitroot

KNOWN DISTRIBUTION: Kane County, Utah

HABITAT: Tropic Shale Formation, pedimental covering from mesas, on saline soils; desert or salt desert shrub communities

ELEVATION: 4200 to 4800 feet (1281 to 1464 m)

DESCRIPTION: Plants acaulescent, not caespitose, with pseudoscape developed or lacking, pilose with sparse hairs; leaves ovate or subelliptic in outline, the blades 1.8-7.7 cm long, 1.5-6 wide, bi- or tripinnate, green; leaflets longer than wide, lobes obtuse to rotund or rarely acute; petioles 1.8-14 cm long; peduncles finally longer than the leaves, 2-13 cm long, purple; involucre scarious margined; bractlets of involucre shorter than the flowers; umbel compact, rays 3-5, 1-10 mm long, central umbel sessile; pedicels 1-6 mm long; flowers pink to purple; fruit ovate to elliptic, 7-10 mm long; seed wings unequal, spongy thickened.

TAXONOMIC PROBLEMS: Higgins biscuitroot is similar to Cymopterus fendleri but differs in its pink flowers, purple pedicels, and spongy-thickened wings subequal to the fruit body.

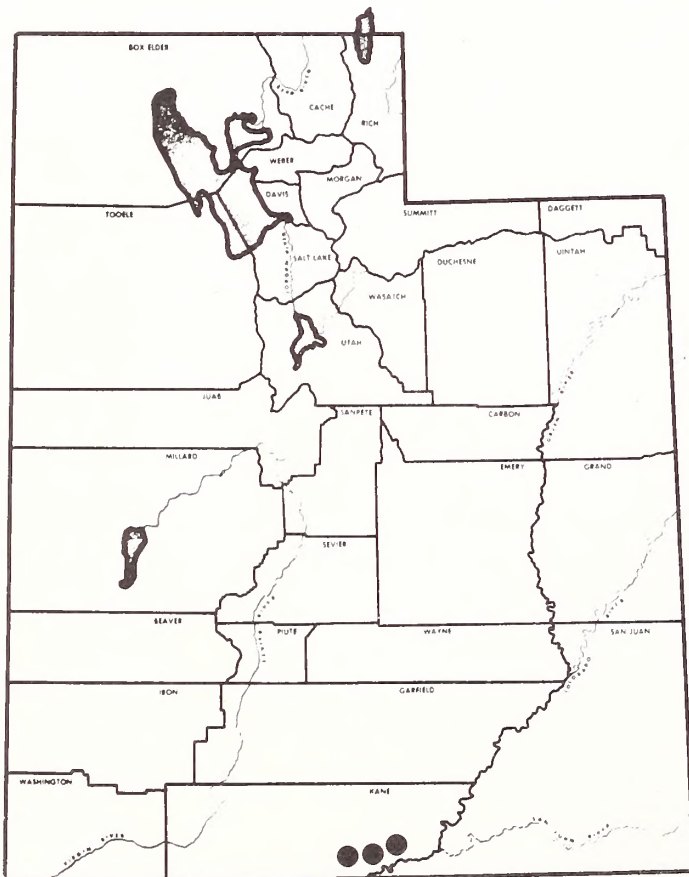
EXISTING OR POTENTIAL THREATS: Off-road vehicles, mineral exploration, industrial development, and highway construction are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; National Park Service; Utah State

REMARKS: The Higgins biscuitroot occurs in saline soils in xeric habitats.

RECOMMENDATIONS: This plant is restricted to Tropic Shale, and should be regarded as threatened.

Cymopterus higginsii



1 cm

SCIENTIFIC NAME: Cymopterus minimus (Mathias) Mathias

FAMILY: Apiaceae

CITATION: Brittonia 2: 245. 1936.

SYNONYMS: Aulospermum minimum Mathias (Ann. Missouri Bot. Gard. 17: 353. 1930.)

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Cedar Breaks biscuitroot

KNOWN DISTRIBUTION: Iron and Garfield cos., Utah

HABITAT: Wasatch Formation; mixed conifer woodland, ponderosa community

ELEVATION: 10,000 to 10,500 feet (3050 to 3203 m)

DESCRIPTION: Perennial from an elongated taproot, scapose, acaulescent or subacaulescent with a short pseudoscape, 8 dm tall, scabrous puberulent; leaves ovate-oblong in outline excluding the petiole 1-3 cm long, 1-2 cm wide, mostly tripinnate, ultimate segments acute, more or less confluent, 1-3 mm long, about 1 mm broad; petioles 0.5-3 cm long, purplish; peduncles equalling or exceeding the leaves, 3-6 cm long; umbels few-rayed, rays unequal, 2-6 mm long, involucre absent; involucre of several distinct green or purplish bracts, equalling or exceeding the white flowers; fruit oblong, 4-5 mm long.

TAXONOMIC PROBLEMS: Some specimens show intergradation between C. minimus, C. purpurescens and C. rosei. The taxonomic status of this plant is unclear.

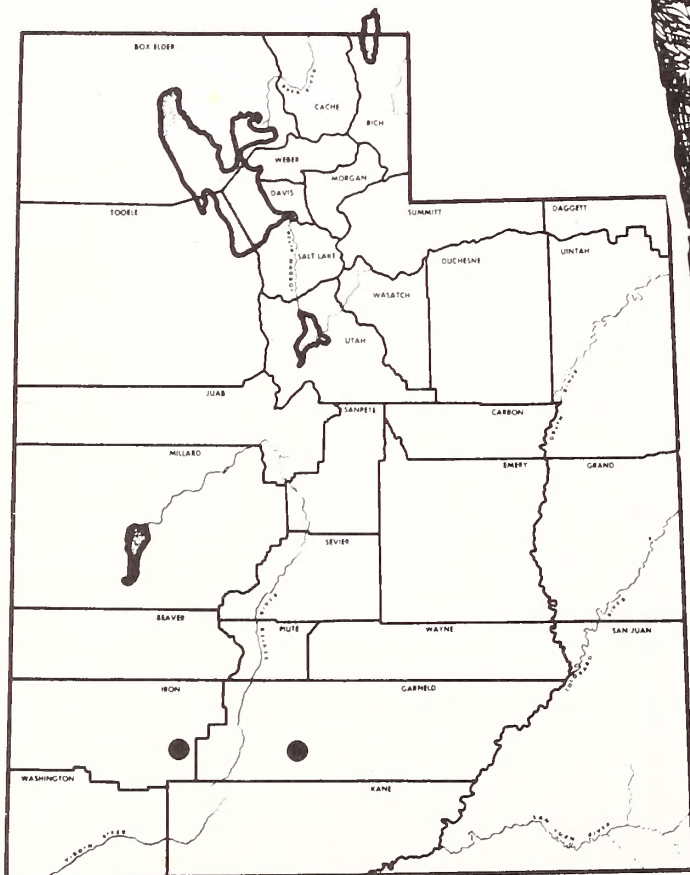
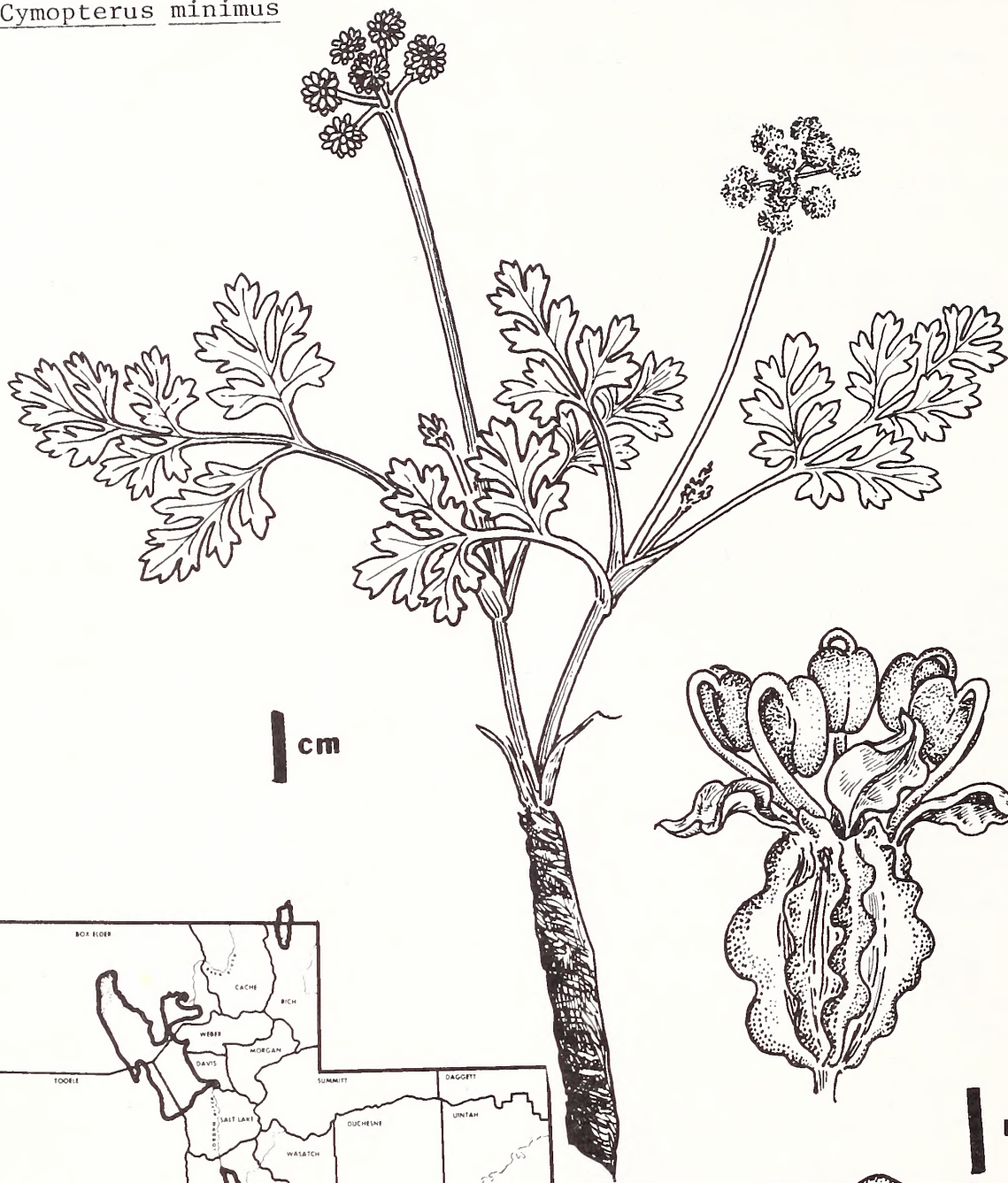
EXISTING OR POTENTIAL THREATS: Limestone exploitation, industrial development and changes in land use are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: National Park Service; U. S. Forest Service

REMARKS: This is another of the species endemic to limestone in the Cedar Breaks - Bryce Canyon area.

RECOMMENDATIONS: The plant should be regarded as endangered.

Cymopterus minimus



SCIENTIFIC NAME: Lomatium latilobum (Rydb.) Mathias

FAMILY: Apiaceae

CITATION: Ann. Missouri Bot. Gard. 25: 281. 1937.

SYNONYMS: Cynomarathrum latilobum Rydb. (Bull. Torrey Bot. Club 40: 73. 1913).

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Broad-leaved biscuitroot

KNOWN DISTRIBUTION: Grand and San Juan cos., Utah

HABITAT: Entrada Sandstone Formation, crevices of sandstone rocks, sandy soil; desert shrub and scattered pinyon-juniper community

ELEVATION: 4800 to 5000 feet (1464 to 1525 m)

DESCRIPTION: Plants acaulescent, 0.8-1.8 dm high, from a semi-woody, deep-seated root with a multicipital caudex, broadly caespitose, branches several, clothed with old leaf sheaths, glabrous; leaves erect, oblong in general outline, excluding the petiole, 2-8 cm long, pinnate or rarely bipinnate; leaflets lanceolate, in 3-5 pairs, entire, acute; petioles 2-10.5 cm long, shortly sheathing below; peduncles equaling or exceeding the leaves; involucl of linear to lanceolate, acute, prominently nerved bractlets, distinct or connate below, usually exceeding pedicels, sometimes reflexed; rays 4-10, spreading, subequal; pedicels 1-4 mm long, umbellets few flowered; flowers yellow; fruit oblong, 7-12 mm long, wings narrower than or equaling the seed.

TAXONOMIC PROBLEMS: None

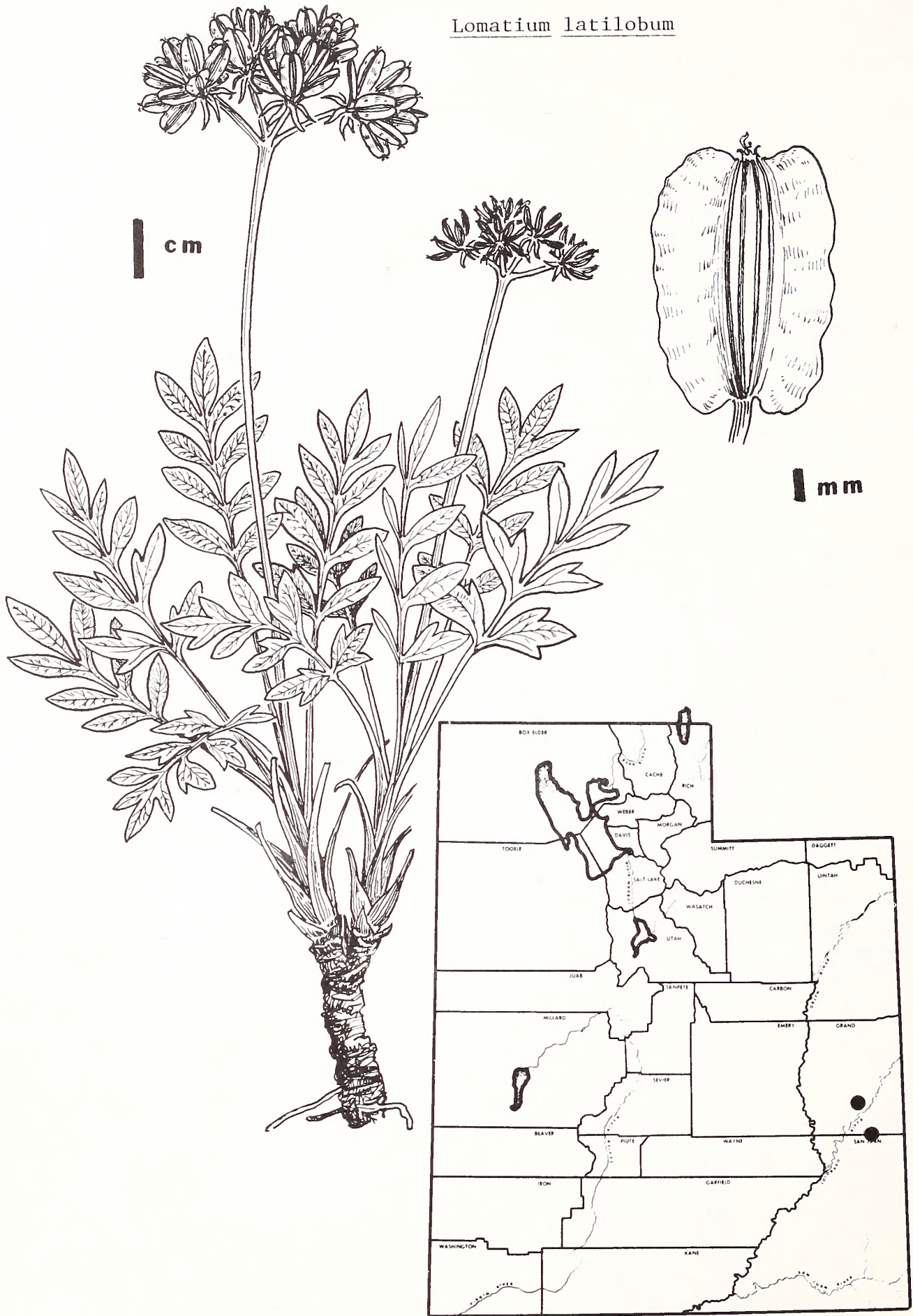
EXISTING OR POTENTIAL THREATS: Trampling (people), industrial development, and mineral exploration are threats to this species.

LAND OWNERSHIP/MANAGEMENT: National Park Service; Bureau of Land Management; private

REMARKS: This biscuitroot species is a narrow endemic between sandstone fins, mainly of the Entrada Sandstone in Grand and San Juan counties.

RECOMMENDATIONS: The species should be regarded as threatened.

Lomatium latilobum



SCIENTIFIC NAME: Musineon lineare (Rydb.) Mathias

FAMILY: Apiaceae

CITATION: Ann. Missouri Bot. Gard. 17: 265. 1930.

SYNONYMS: Daucophyllum lineare Rydb. (Bull. Torrey Bot. Club. 40: 69. 1913.)

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Cache musineon

KNOWN DISTRIBUTION: Cache County, Utah

HABITAT: Limestone outcrops, in rocky crevices and along ridge tops, dry soil

ELEVATION: 6000 to 9300 feet (1830 to 2837 m)

DESCRIPTION: Plants subcaulescent, subcaespitose, 0.8-2.5 dm tall; stems glabrous, slender, lax usually longer than the leaves; leaves narrowly oblong in outline, excluding the petiole, 2-5 cm long, pinnate, ultimate segments distinct, linear, acute, 1-3.5 cm long; petioles 3-14 cm long; umbels several rayed, rays 2-5 mm long, involucre conspicuously bilobed; bracts distinct linear-lanceolate, acute, greatly exceeding yellow flowers; fruit ovate oblong, 3-4 mm long, 1-2 mm broad, minutely scaberulent.

TAXONOMIC PROBLEMS: None

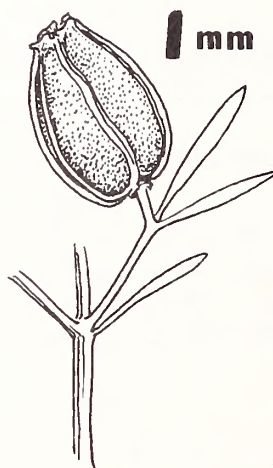
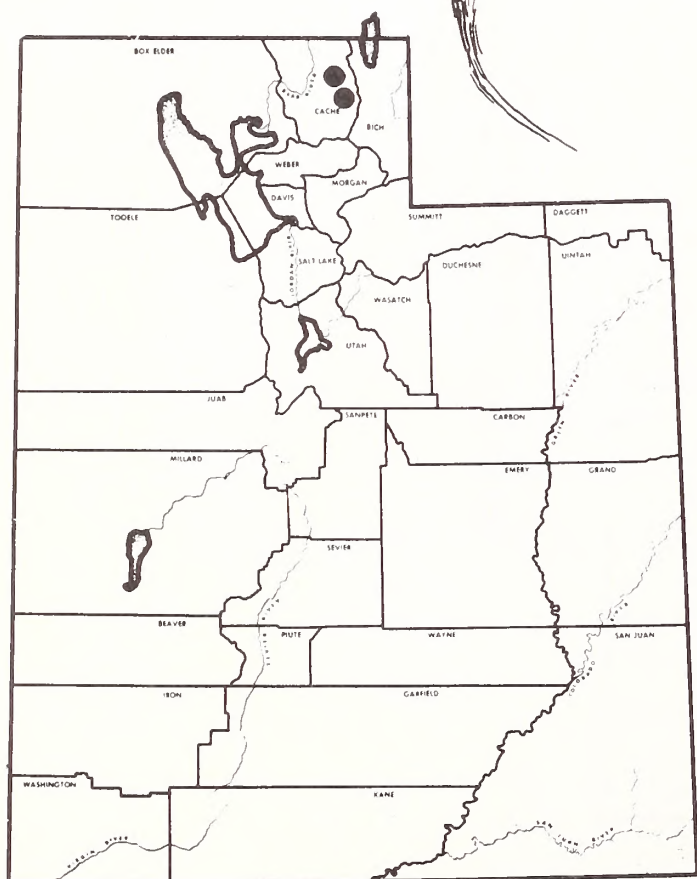
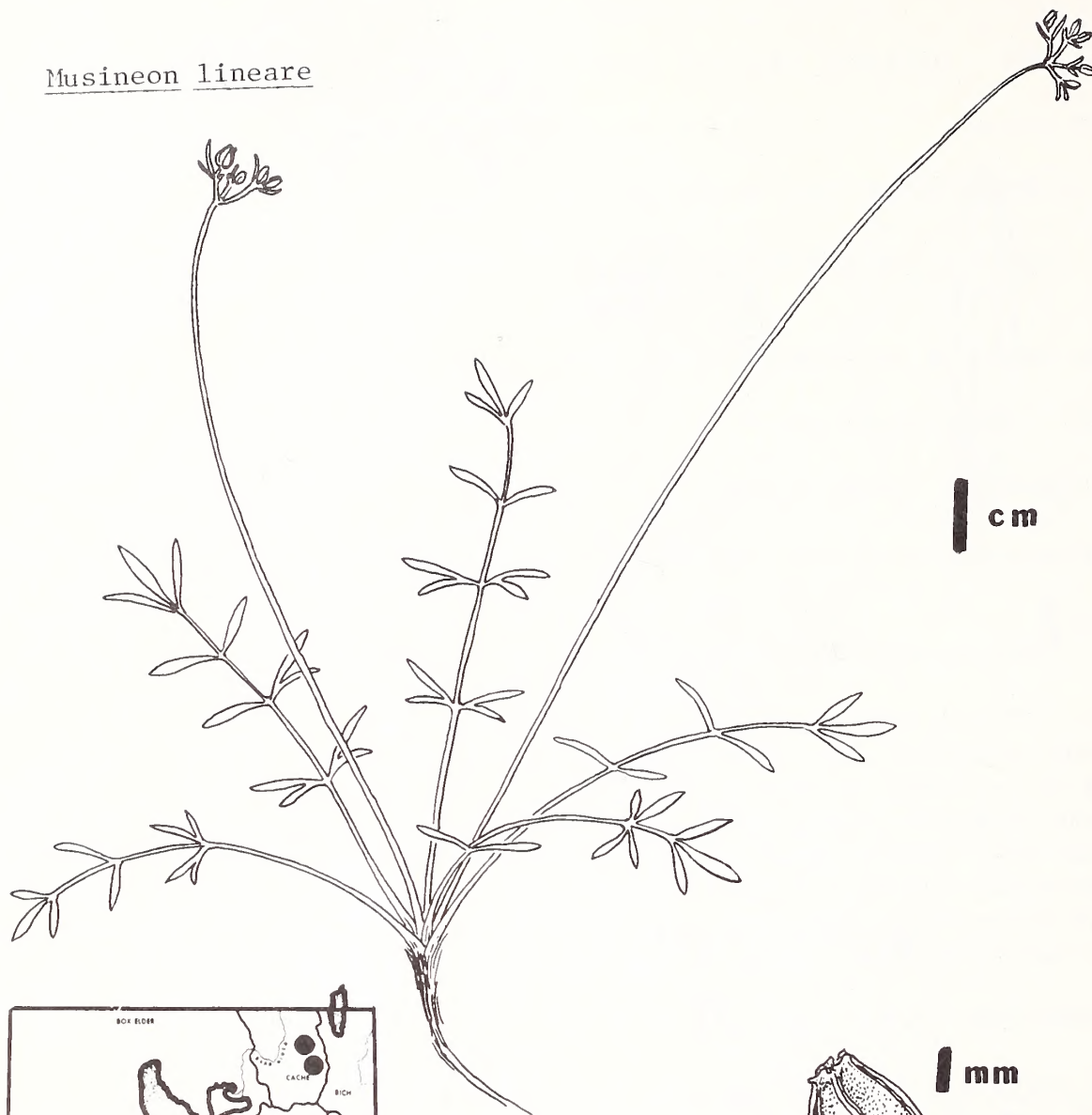
EXISTING OR POTENTIAL THREATS: Possible changes in land status are threats to this species.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service; private

REMARKS: This species is at least locally common.

RECOMMENDATIONS: The Cache musineon should be regarded as threatened until information on population data is available.

Musineon lineare



SCIENTIFIC NAME: Cycladenia humilis Benth. var. jonesii (Eastw.) Welsh
& Atwood

FAMILY: Apocynaceae

CITATION: Great Basin Naturalist 4: 333. 1975.

SYNONYMS: Cycladenia jonesii Eastwood. (Leaf1. W. Bot. 3: 159. 1942.)

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed
as endangered, Federal Register, 16 June 1976. Recommended as
endangered by S. L. Welsh, 1978.

COMMON NAME: Jones cycladenia

KNOWN DISTRIBUTION: Grand Co., Utah

HABITAT: Cutler Formation, sandy silty soil; desert shrub community

ELEVATION: 5000 feet (1525 m)

DESCRIPTION: Perennial herb from a subterranean rhizome; stems 10-15 cm
tall; leaves orbicular, wide-oval or elliptical, short petioled, 5-6
cm wide, light yellow-green; inflorescence cymose; pedicels slender;
calyx with lanate pubescence; flower pinkish to rose, salverform, 15
mm long with lanate pubescence mainly on the tube; fruit a follicle,
6 cm long.

TAXONOMIC PROBLEMS: Related to C. humilis; it is distinguished by the
woolly pubescence on the calyx and corolla.

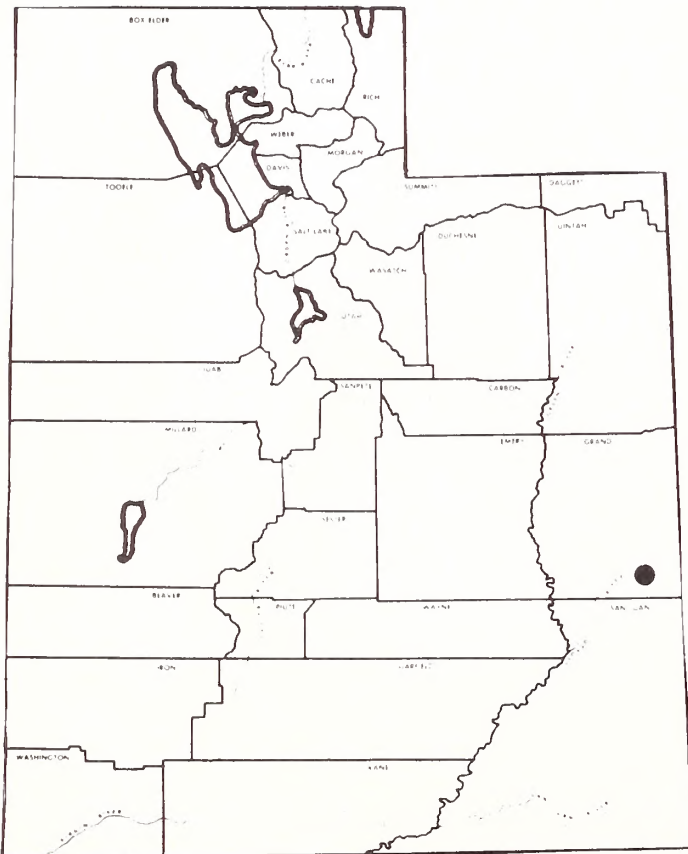
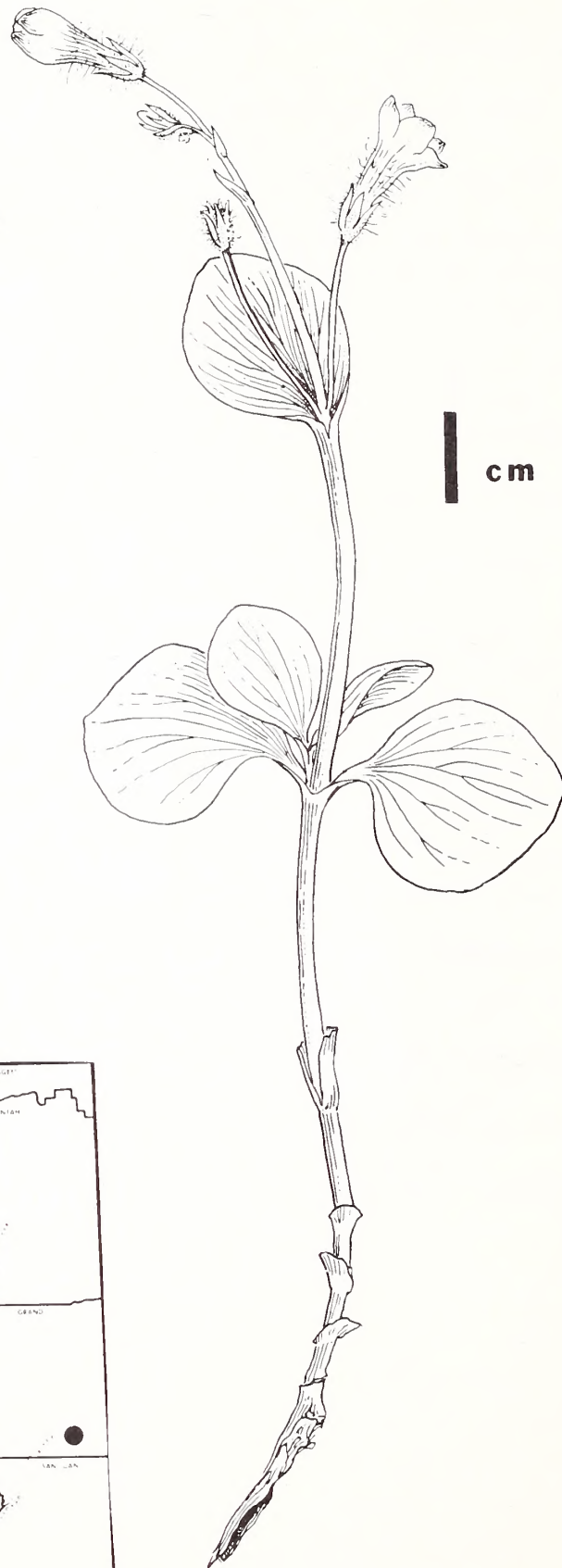
EXISTING OR POTENTIAL THREATS: Road building has been proposed through
the only known population.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; private

REMARKS: This plant is known from a single population.

RECOMMENDATIONS: This plant should be considered as critically endangered.

Cycladenia humilis var. jonesii



SCIENTIFIC NAME: Asclepias cutleri Woodson

FAMILY: Asclepiadaceae

CITATION: Ann. Missouri Bot. Gard. 26: 263. 1939.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975.

Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Cutler milkweed

KNOWN DISTRIBUTION: Grand and San Juan cos., Utah; Apache County, Arizona

HABITAT: Navajo Formation, blow sand; desert shrub community

ELEVATION: 4300 feet (1312 m)

DESCRIPTION: Small herbaceous perennial; stems clustered at the base, ascending, simple, to 12 cm tall, pubescent all over; leaves opposite, subsessile, linear about 4-8 cm long, light green; inflorescence axillary, foliaceous, a few flowers short peduncled or probably sessile; pedicels about 1 cm long, minutely pilose; calyx lobes ovate-lanceolate, densely pilose; corolla rotate, lavender, lobes spreading, ovate-elliptic, 5-6 mm long; sparsely minutely pilose outside, very minutely papillate inside; staminate column fleshy, about 5-6 mm long; foliaceous corona saccate, fleshy, 1 mm long, white.

TAXONOMIC PROBLEMS: Closely related to A. brachystephana and A. uncialis, A. cutleri differs in its narrower leaves and technical details in the gynostegium.

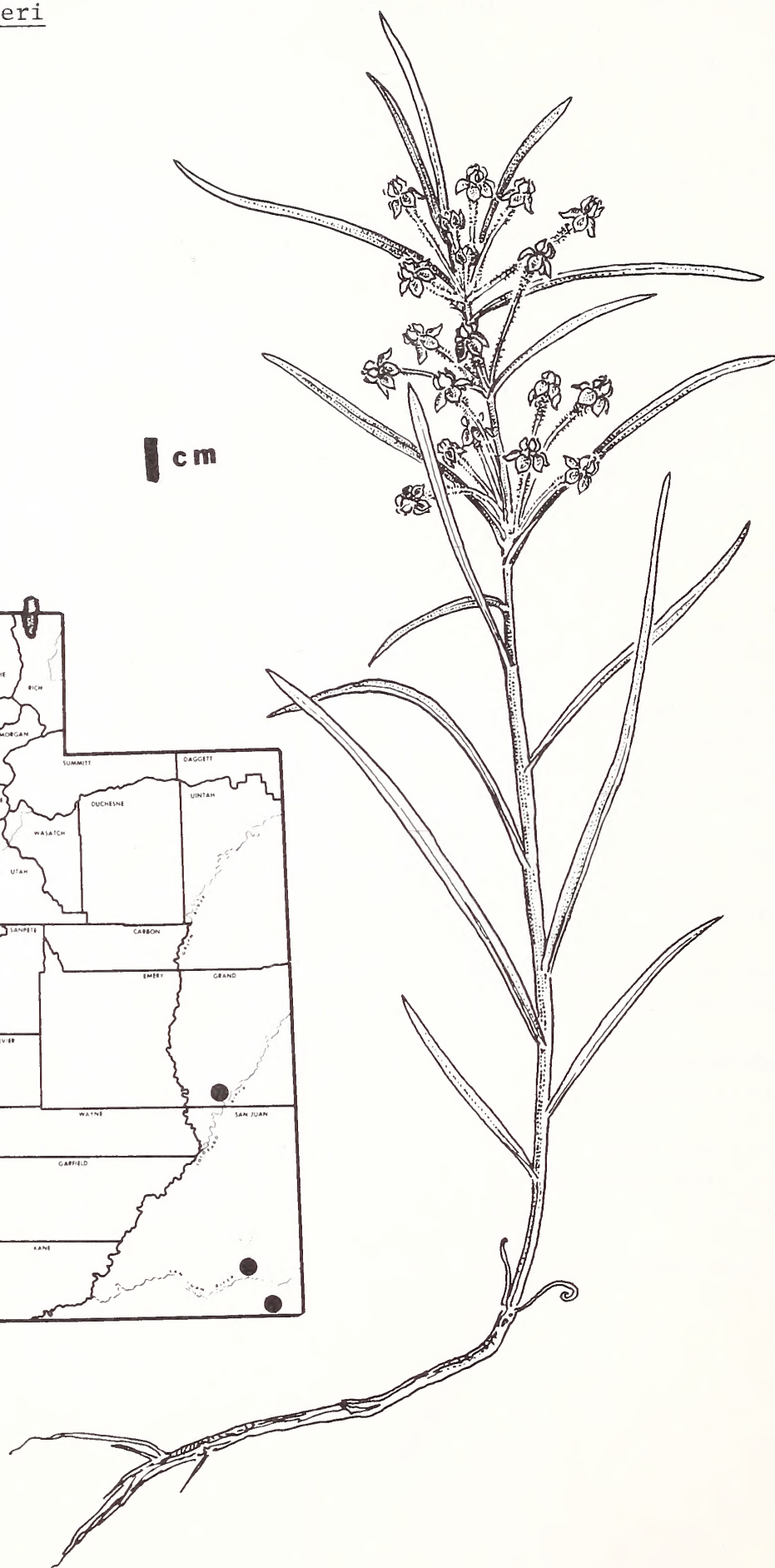
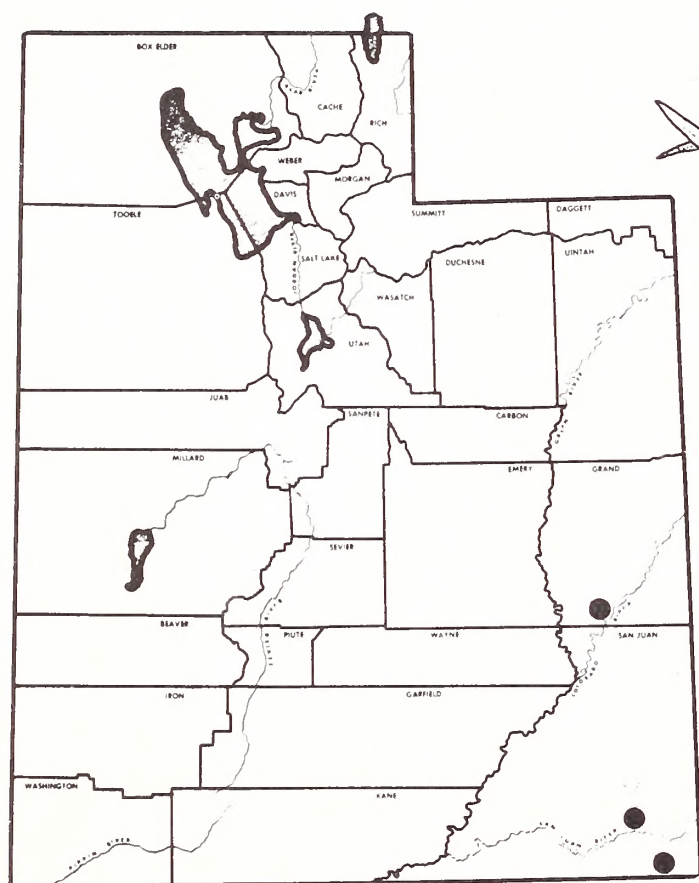
EXISTING OR POTENTIAL THREATS: Urban expansion (Moab population), mineral exploration and industrial development are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Bureau of Indian Affairs; private

REMARKS: The linear leaves, lavender corolla, and white hood are diagnostic features which allow segregation of this species from all others in Utah.

RECOMMENDATIONS: The Cutler milkweed should be regarded as threatened.

Asclepias cutleri



SCIENTIFIC NAME: Asclepias ruthiae Maguire & Woodson

FAMILY: Asclepiadaceae

CITATION: Ann. Missouri Bot. Gard. 26: 263. 1939.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Ruth milkweed

KNOWN DISTRIBUTION: Emery, Grand and Wayne cos., Utah

HABITAT: Emery Sandstone, Mancos Shale, Entrada Sandstone and Moenkopi formations, sandy, silty or clay substrates, often saline; pinyon-juniper, salt desert shrub or mixed grass community

ELEVATION: 4700 to 6000 feet (1434 to 1830 m)

DESCRIPTION: Perennial, the stems decumbent, mostly 6-15 cm long; leaves opposite, petiolate, ovate, 1-5 cm long, 1-3 cm broad, white tomentulose; inflorescence few-flowered; flowers small; calyx violet, lobes 6 mm long; gynostegium subsessile, pale rose-purple, the hoods saccate truncate, about 1 mm long, the horn as long as the hood; follicles erect on deflexed pedicels, 3-4 cm long, mostly glabrous.

TAXONOMIC PROBLEMS: The broad leaves of A. ruthiae separate it from A. cutleri, a near relative with narrow linear leaves.

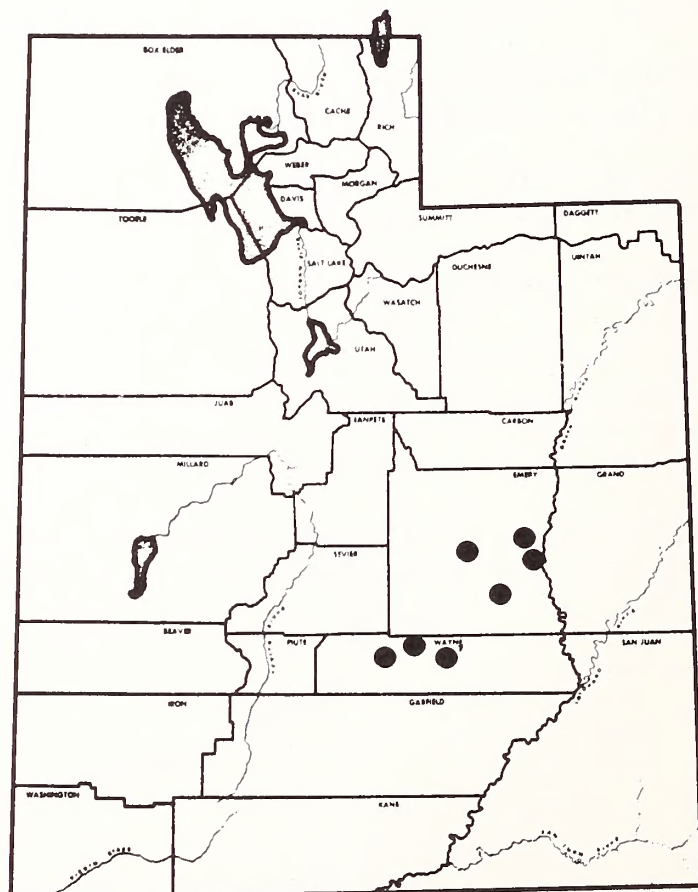
EXISTING OR POTENTIAL THREATS: Off-road use and trampling by livestock or people are threats to the habitat of this plant.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State; private

REMARKS: This species and other narrowly restricted milkweeds can serve as examples in studies designed to demonstrate origin and genetic pathways. Also the plants tend to stabilize substrates with low vegetative potential.

RECOMMENDATIONS: Populations of Ruth milkweed should be located with accuracy, monitored carefully and habitat preserved.

Asclepias ruthiae



SCIENTIFIC NAME: Erigeron abajoensis Cronq.

FAMILY: Asteraceae

CITATION: Brittonia 6: 168. 1947.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Abajo daisy

KNOWN DISTRIBUTION: Garfield, Piute, San Juan and Sevier cos., Utah

HABITAT: Pink Limestone Member of the Wasatch Formation and other limestone and igneous substrates; pinyon, juniper, oakbrush, pine woods; clay loam

ELEVATION: 6000 to 9196 feet (1830 to 2776 m)

DESCRIPTION: Perennial with a stout branched caudex; stems decumbent or spreading 5-15 cm long; leaves simple, strigose or the basal ones loosely hirtellous, basal ones narrowly oblanceolate, up to 6 cm long, and 5 cm wide, cauline leaves several, linear, 1-2.5 cm long; head solitary, 10-11 mm wide; involucre finely hispidulous or hirtellous, slightly imbricate, somewhat thickened on the back, greenish brown with a somewhat purplish tip; ligules blue, sometimes white, 40-60, 3-8 mm long; disk corollas 3-4 mm long; pappus double, inner one of bristles, outer of setae or squamellae; achene short hairy.

TAXONOMIC PROBLEMS: None

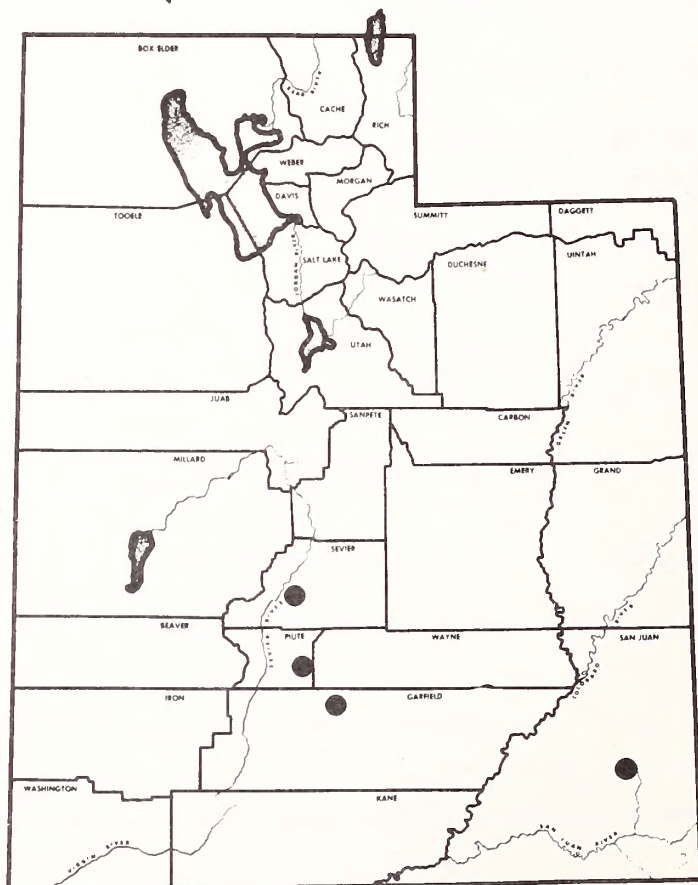
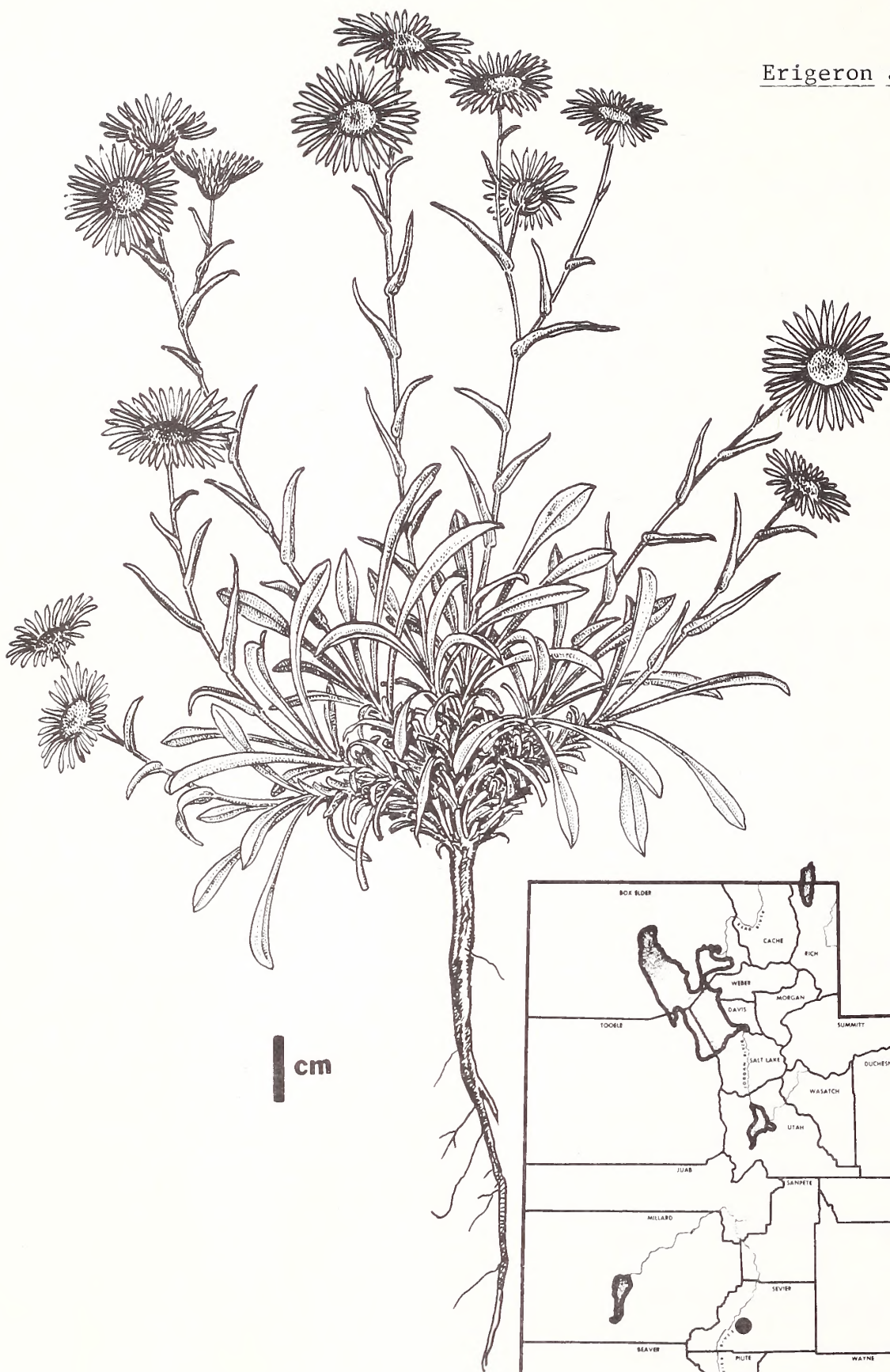
EXISTING OR POTENTIAL THREATS: Mineral exploration and exploitation are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; U. S. Forest Service; State; private

REMARKS: This species is known from a wide area but is still obscure. Much work remains to be done.

RECOMMENDATIONS: This species should be treated as threatened.

Erigeron abajoensis



SCIENTIFIC NAME: Erigeron cronquistii Maguire

FAMILY: Asteraceae

CITATION: Brittonia 5: 201. 1944.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Cronquist daisy

KNOWN DISTRIBUTION: Cache Co., Utah

HABITAT: Rock crevices in cliffs on north side of canyons; fir and spruce community

ELEVATION: 5800 to 8800 feet (1769 to 2684 m)

DESCRIPTION: Perennial plant with a short much branched caudex with marcescent leaf bases; stem sparsely strigose, 1.5-7 cm high; leaves sparsely strigose, the basal ones 1-4 cm long, petiolate, blade oblanceolate or spatulate, rounded at the apex, cauline leaves few, linear; heads solitary, occasionally 2, the disk 5-8 mm wide; involucre 3-5 mm, granular, or moderately hirsute with short spreading hairs; phyllaries imbricate thin, green, with purplish tips; ligules 10-20 white or light pink, 5-6 mm long; disk corollas about 2-3.4 mm long; pappus of 12-20 slender fragile bristles, shorter than the corolla; achenes finely and sparsely hairy.

TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Potential industrial development and highway construction are threats to this plant.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

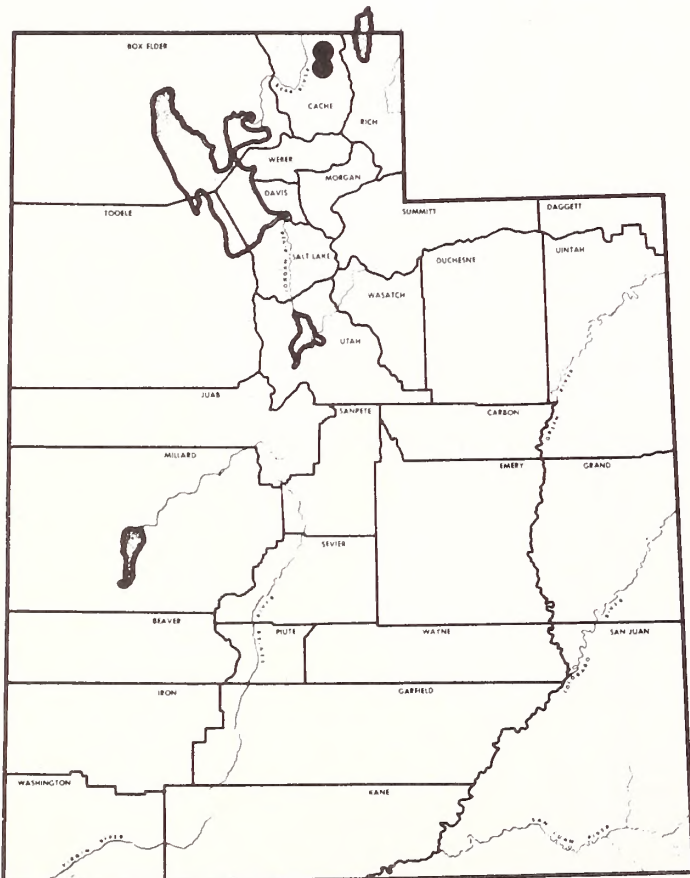
REMARKS: The species is both ecologically and geographically restricted.

RECOMMENDATIONS: The species should be regarded as threatened.

Erigeron cronquistii



1 cm



SCIENTIFIC NAME: Erigeron kachinensis Welsh and Moore

FAMILY: Asteraceae

CITATION: Proc. Utah Acad. Sci. 45: 231. 1968.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, July 1, 1975. Proposed as endangered, Federal Register, June 16, 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAMES: Kachina daisy

KNOWN DISTRIBUTION: San Juan Co., Utah.

HABITAT: Cedar Mesa Sandstone, hung water table in moist sandstone; hanging garden community.

ELEVATION: 5920 feet (1800 m)

DESCRIPTION: Perennial herbs from a stout caudex and taproot, 6-18 mm tall, herbage glabrous throughout; basal leaves numerous, 1.3-5 cm long, oblanceolate, cauline leaves reduced, spatulate to oblong or linear; heads solitary or 2-4, about 5-6 mm broad, ligules 10-15, white or tinged pink, 3.5-4.5 mm long, disk corollas about 2.5 mm long; pappus double, white bristles, shorter than or equaling the disk corollas; achenes 2 nerved, hairy.

TAXONOMIC PROBLEMS: Closely related to E. subglaber Cronq., which is known only from Elk Mountain, San Miguel Co., New Mexico, it differs in its lack of pubescence, taller stature, smaller less numerous ligules and small and more numerous heads.

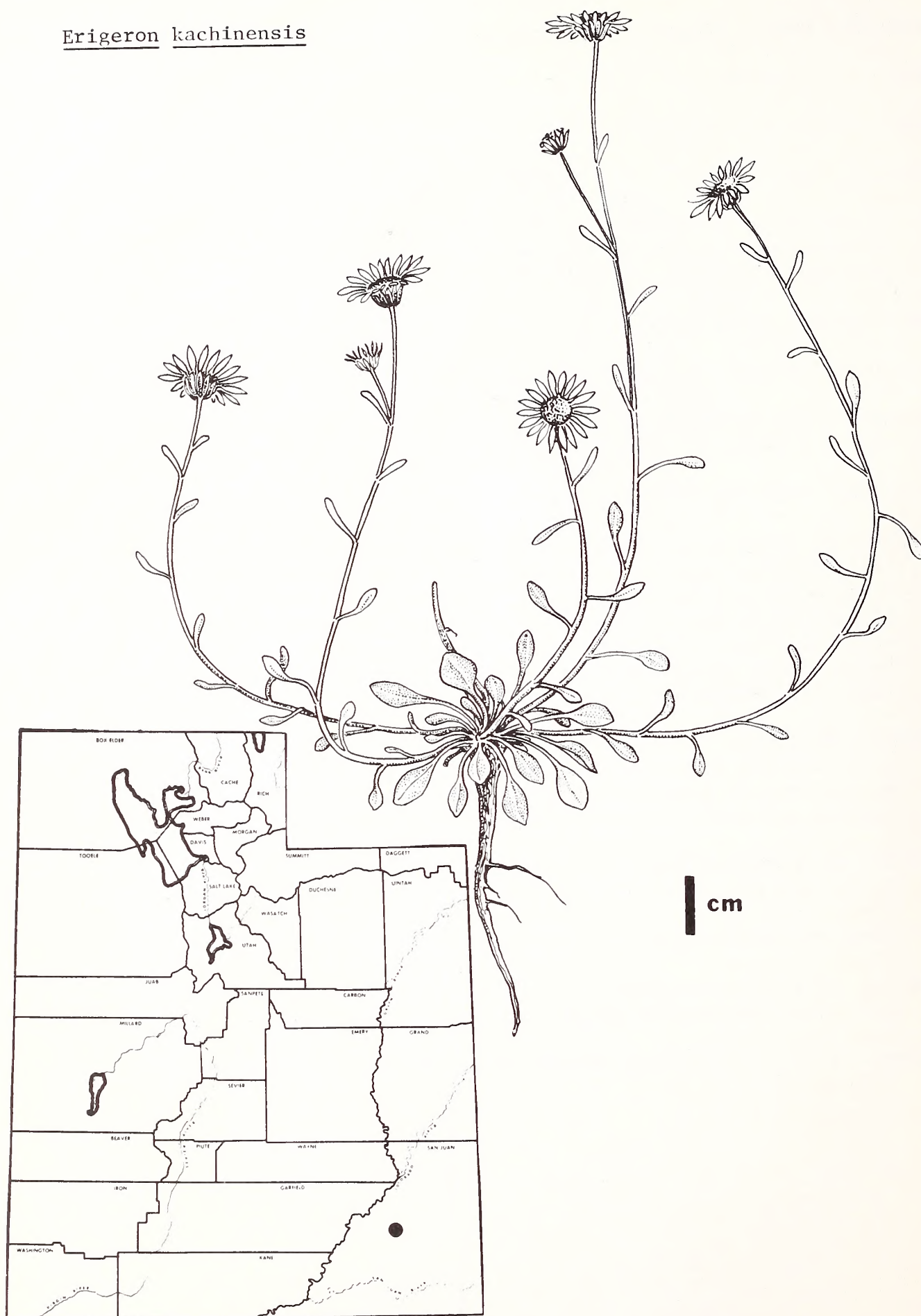
EXISTING OR POTENTIAL THREATS: Only known locality is passed by a major trail from the summit of the mesa down toward Kachina Natural Bridge.

LAND OWNERSHIP/MANAGEMENT: National Park Service

REMARKS: This narrow endemic is critical to understanding origin of species in a large and complex genus.

RECOMMENDATIONS: This plant should be regarded as endangered.

Erigeron kachinensis



SCIENTIFIC NAME: Erigeron maguirei Cronq.

FAMILY: Asteraceae

CITATION: Brittonia 6: 165. 1947.

SYNONYMS: None

STATUS: Proposed as endangered, Federal Register, July 1, 1975. Proposed as endangered, Federal Register, June 16, 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Maguire daisy

KNOWN DISTRIBUTION: Emery Co., Utah

HABITAT: Navajo Sandstone Formation, dry, rocky, sandy canyon bottom; desert shrub community.

ELEVATION: 5500 feet (1678 m)

DESCRIPTION: Perennial herb with a branching caudex, stem 7-13 cm high, spreading hirsute; leaves hirsute, basal ones oblanceolate, rounded at apex, 2-4 cm long, 6-8 mm wide, cauline leaves not much reduced upward but become narrowly elliptic, sessile or short petiolate; heads 1-3, 8-10 mm wide, involucre 5-6.5 mm long, moderately hirsute, finely glandular; phyllaries imbricate, green, sometimes with a darker midrib, the inner with purplish tips; ligules 15-20, white or pink, 6-8 mm long, pappus of sordid bristles; achenes 2 nerved, hirsute-villous with white appressed hairs.

TAXONOMIC PROBLEMS: The plant is related to E. caespitosus, E. jonesii, and E. ovinus, but its leaves are only faintly, if at all, three nerved. Its few ligules and hirsute pubescence distinguish it.

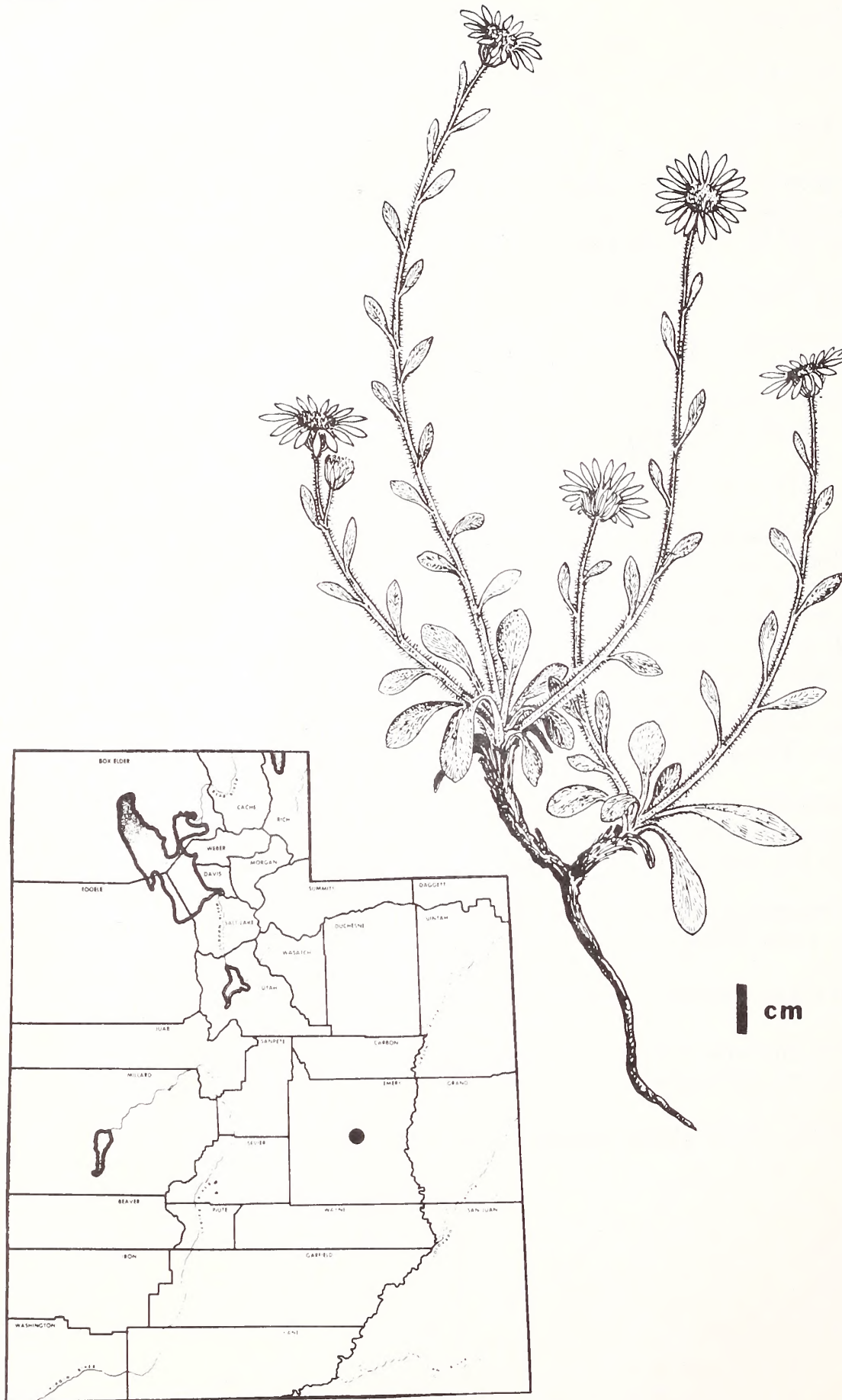
EXISTING OR POTENTIAL THREATS: Grazing and the impact of off-road vehicles endanger this plant.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management, Utah State

REMARKS: This obscure species of Erigeron is of importance in determining evolutionary processes.

RECOMMENDATIONS: This plant should be regarded as endangered.

Erigeron maguirei



SCIENTIFIC NAME: Erigeron mancus Rydb.

FAMILY: Asteraceae

CITATION: Fl. Rocky Mts. 902: 1067. 1917.

SYNONYMS: Erigeron pinnatisectus A. Nels. var. insolens Macbr. and Pays.
(Contr. Gray Herb. II. 49: 79. 1917.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended
as threatened by S. L. Welsh, 1978.

COMMON NAME: Depauperate daisy

KNOWN DISTRIBUTION: Grand and San Juan cos., Utah

HABITAT: Rocky granitic ridge crest; subalpine, spruce, and fir community

ELEVATION: 11,600 to 12,000 feet (3538 to 3660 m)

DESCRIPTION: Plant perennial from a stout usually branched caudex; stem mostly
1-5 cm long, somewhat glandular and sparsely spreading-hairy with one
or two reduced linear leaves; leaves clustered at the base, pinnatifid,
lobes crowded, 2-6 per leaf; petioles glabrous or sometimes bristly
hairy, occasionally glandular; heads solitary, about 9-12 mm wide;
involucre 5-6.5 mm high, moderately hirsute; phyllaries subequal, sometimes
purplish, especially on the margins; disk corollas 3-4 mm long, yellow-
brown; ligules lacking; pappus simple, shorter than the corolla; achenes
hairy.

TAXONOMIC PROBLEMS: Related to E. pinnatisectus, E. mancus differs sharply
in the complete absence of ligulate flowers.

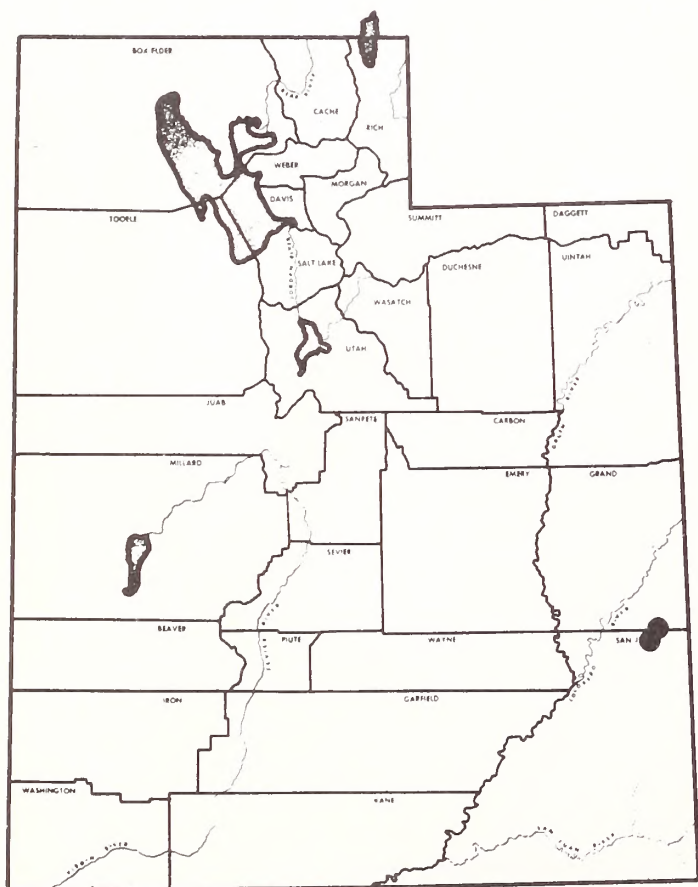
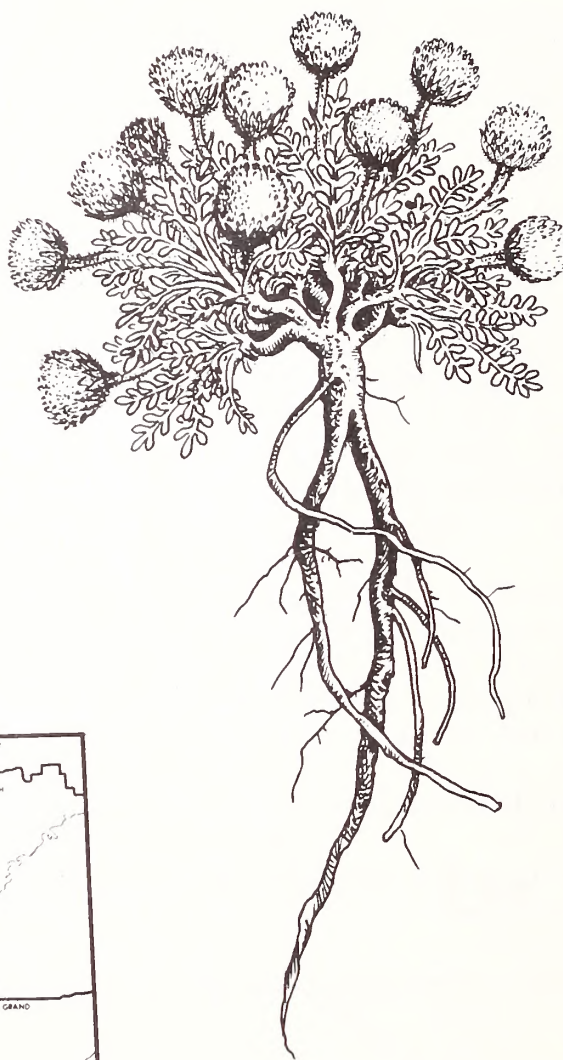
EXISTING OR POTENTIAL THREATS: Potential changes in land use and mineral
exploration threaten this plant.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

REMARKS: The species has been and remains obscure; hence, the conservative
recommendation.

RECOMMENDATIONS: The plant should be treated as threatened.

Erigeron mancus



SCIENTIFIC NAME: Erigeron proselyticus Neson

FAMILY: Asteraceae

CITATION: Brittonia 28: 266. 1976.

SYNONYMS: Erigeron flagellaris A. Gray var. trilobatus Maguire. (Brittonia 6: 258. 1947.)

STATUS: Reviewed as endangered, Federal Register, July 1, 1975. Proposed as endangered, Federal Register, June 16, 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Cliff daisy

KNOWN DISTRIBUTION: Iron Co., Utah

HABITAT: Wasatch Formation, talus slopes, loose sandy soil on canyon walls, or calcareous rocks; spruce-fir community

ELEVATION: 9000 feet (2745 m)

DESCRIPTION: Plants perennial, 14-25 cm tall, woody branching caudex, occasionally with fibrous roots, branching at the base; stems erect or ascending; basal leaves spatulate to oblanceolate, entire or pinnately few lobed, 5-76 mm long, glabrous to sparsely strigose; cauline leaves entire or the lower ones tri-lobed, linear to lanceolate, 5-21 mm long, gradually reduced upwards; heads numerous, first ones solitary at the ends of the stems, shorter peduncles in the axils of cauline leaves later; disks 3.5-7 mm wide, sparsely hirtellous; phyllaries with a brown midrib; corollas 1.9-2.6 mm long, whitish; achenes sparsely pubescent.

TAXONOMIC PROBLEMS: E. proselyticus is closely related to E. flagellaris but can be distinguished by its perennial caudex, usually glabrous foliage, and tri-lobed basal leaves.

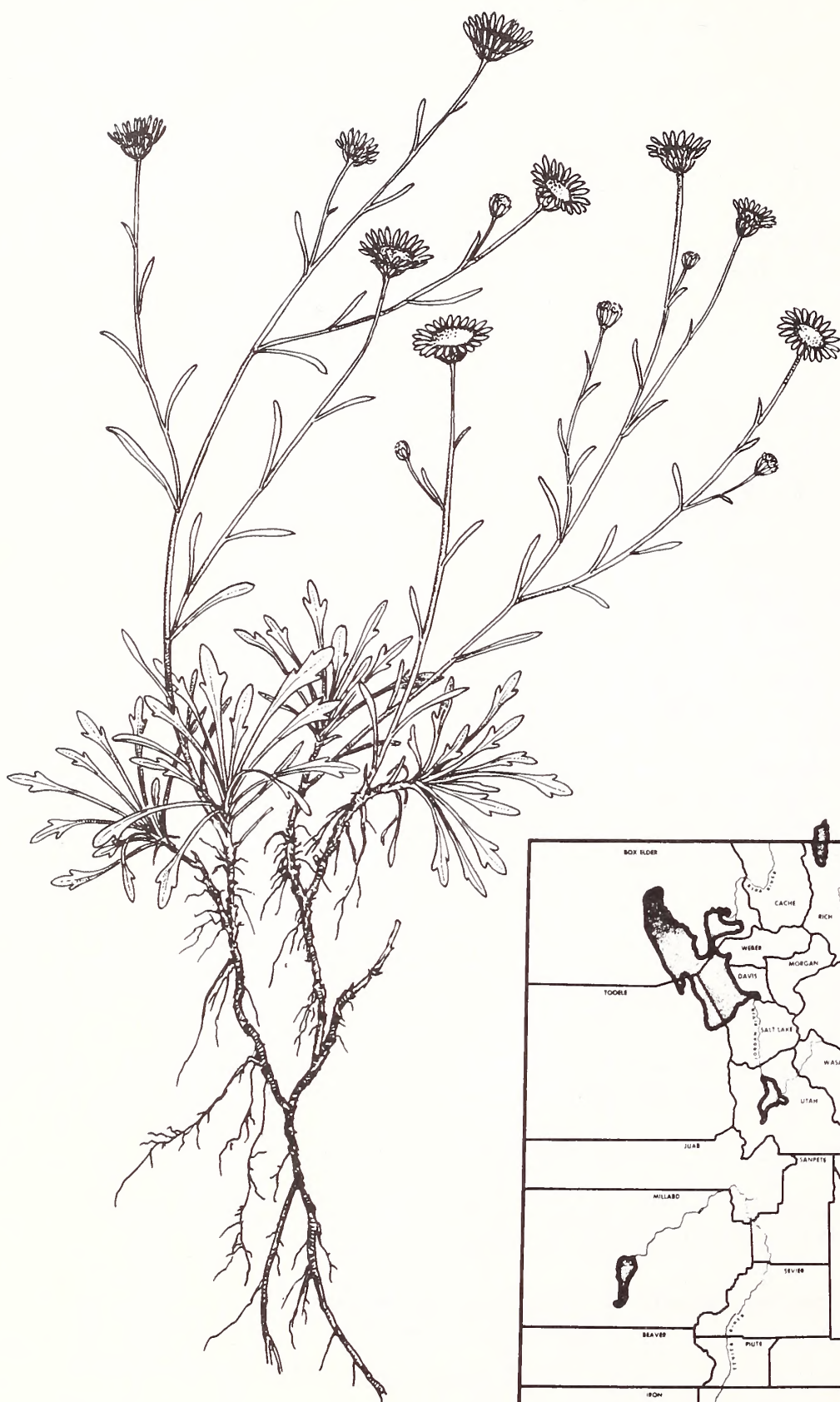
EXISTING OR POTENTIAL THREATS: Highway realignment, timber harvest and potential quarrying of limestone are threats to this plant.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

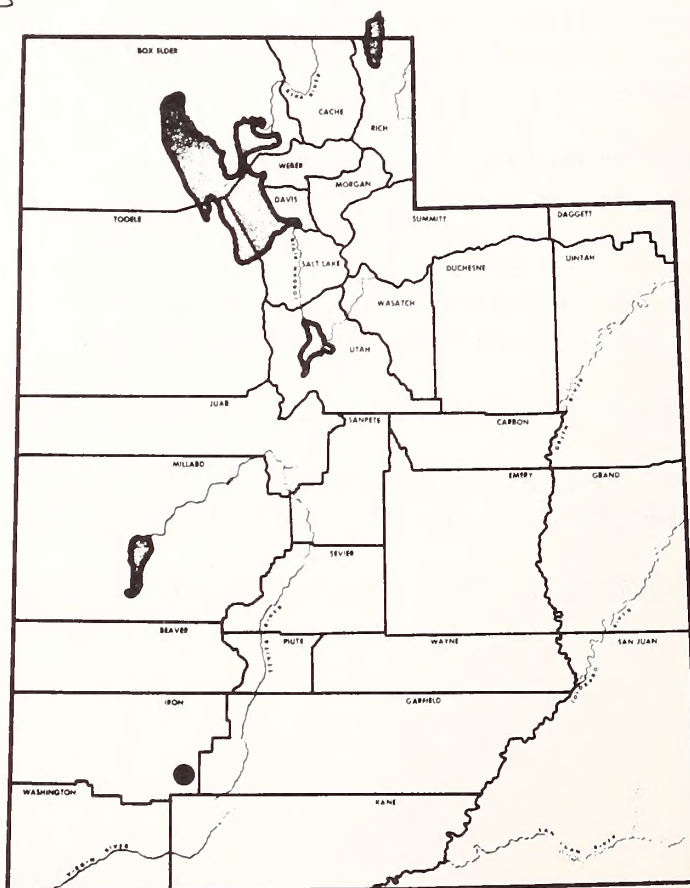
REMARKS: This plant is endemic to the type locality and is important in understanding specific relationships in this complex genus.

RECOMMENDATIONS: This species should be regarded as endangered.

Erigeron proselyticus



cm



SCIENTIFIC NAME: Erigeron religiosus Cronq.

FAMILY: Asteraceae

CITATION: Brittonia 6: 258. 1947.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Clear Creek fleabane

KNOWN DISTRIBUTION: Kane and Washington cos., Utah

HABITAT: Quaternary sand dunes, interdune valleys and sandy terraces

ELEVATION: 5000 to 6000 feet (1525 to 1830 m)

DESCRIPTION: Biennial herb with a taproot; slender stems branched, 2-25 cm long, sparsely appressed hairy; basal leaves to 5 cm long, 6 mm wide, elliptic blade about 1.5 cm long, cauline linear or oblanceolate; heads several; phyllaries green with a brown midrib; ray flowers 20-70, white or sometimes blue; disk 4-7 mm wide; pappus of 6-12 fragile white bristles; achene 2-nerved, more or less hairy.

TAXONOMIC PROBLEMS: The species is relatively obscure and relationships are not clearly established.

EXISTING OR POTENTIAL THREATS: Dune vehicles traverse the Coral Pink dunes which are the main habitat of this and other rare plants.

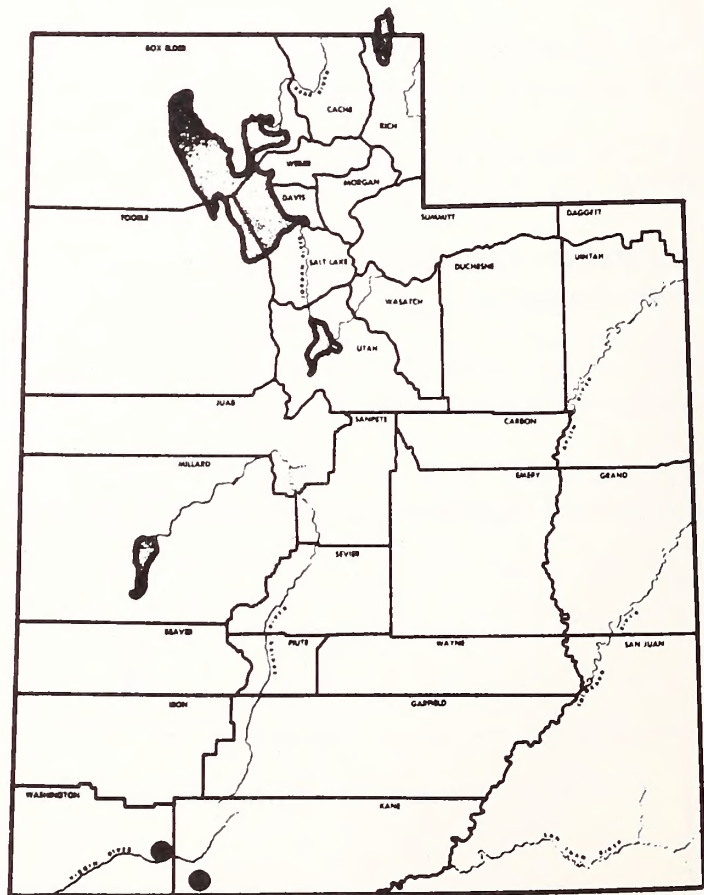
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State; National Park Service

REMARKS: This plant is of ecological value because of its ability to survive in unstable sandy soil.

RECOMMENDATIONS: Critical habitat areas should be set aside as natural areas and surface disturbances excluded from them.

Erigeron religiosus

The illustration shows a plant with a central rosette of narrow, lanceolate leaves. Several upright, branched stems arise from the center, bearing numerous small, daisy-like flowers. A vertical scale bar to the left of the plant is labeled 'cm'. To the right of the plant is a map of Utah, divided into counties. The counties of BOYD, KANE, COCHISE, MOHAVE, MARICOPA, PIMA, PINAL, GILA, YAVAPAI, COCONINO, AVILA, YUMA, SAN JUAN, KANE, COCHISE, MOHAVE, MARICOPA, PIMA, PINAL, GILA, YAVAPAI, COCONINO, AVILA, YUMA, and SAN JUAN are labeled. The distribution of *Erigeron religiosus* is indicated by shaded areas: a large area in the northwestern corner (Garfield and Kane counties), a smaller area in the central part (Utah and Wasatch counties), and a small area in the southwestern corner (Mohave and Coconino counties).



SCIENTIFIC NAME: Gaillardia flava Rydb.

FAMILY: Asteraceae

CITATION: N. Amer. Fl. 34: 139. 1915.

SYNONYMS: None

STATUS: Proposed endangered, Federal Register, 16 June 1976. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Yellow blanket flower

KNOWN DISTRIBUTION: Emery and Grand cos., Utah

HABITAT: Mancos Shale Formation, alluvial fan and river terraces, sandy gravel; Salix-Populus community

ELEVATION: 4200 to 5400 feet (1218 to 1647 m)

DESCRIPTION: Perennial, woody caudex; stems and foliage yellow green, much branched, sparsely hirsutulous, about 3 dm high; leaves obovate in outline, 3-5 cm long, pinnately parted; peduncles 5-10 cm long; involucral bracts about 1 cm long, lanceolate, hirsutulous; ray flowers neutral; ligules pale yellow, about 8 mm long, 5 mm wide, cuneate, deeply 3 cleft; disk light yellow, 15-18 mm broad; tube flowers 7 mm long; achenes 2 mm long, densely hirsute.

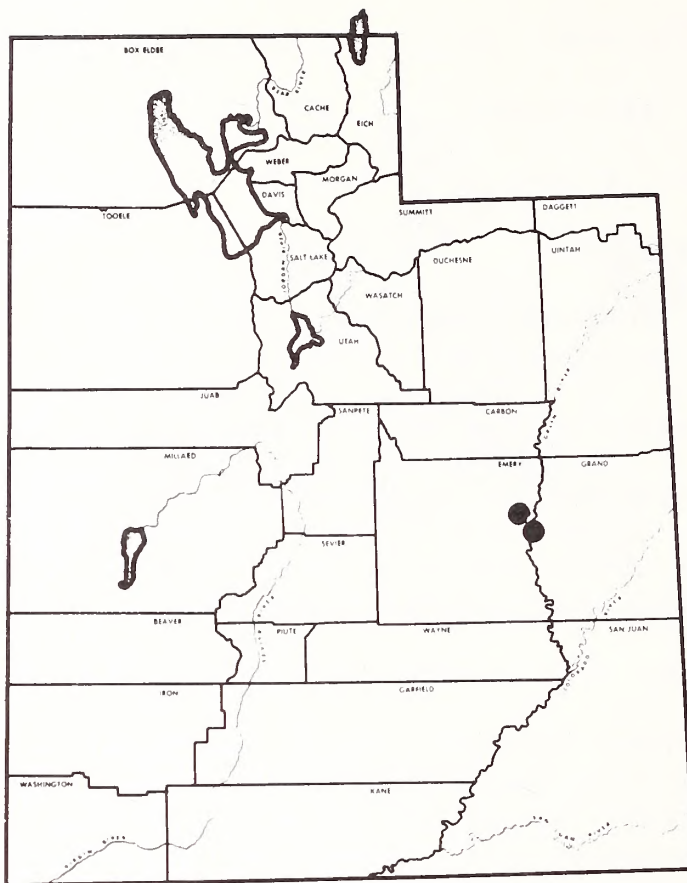
TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Potential industrial development, off-road vehicles, and recreational use are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: The leaves and stems are glandular-viscid and the glandular secretion is odoriferous and badly flavored.

RECOMMENDATIONS: The yellow blanket flower should be regarded as threatened.



Gaillardia flava

cm

SCIENTIFIC NAME: Helianthus deserticolus Heiser

FAMILY: Asteraceae

CITATION: Proc. Indiana Acad. Sci. 70: 209. 1961

SYNONYMS: None

STATUS: Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Desert sunflower

KNOWN DISTRIBUTION: Washington Co., Utah; Mohave Co., Arizona; Clarke Co., Nevada

HABITAT: Dry sandy soil; open areas in desert shrub community

ELEVATION: 2100 to 4500 feet (641 to 1373 m)

DESCRIPTION: Plants annual, 1-4 dm tall; stem branching, densely hispid; leaves 2.5-5 cm long, 1-2 cm wide, lance ovate, hispid to hirsute, margin entire; disk 1.3-2.5 cm in diameter; involucre bracts mostly 1.4 cm long, 0.2 cm wide, linear lanceolate, acuminate, hirsute; chaff 3-toothed; achenes 4-5 mm long pilose; pappus of 2, ovate scales and about 10 squamellae, 0.5-1 mm long.

TAXONOMIC PROBLEMS: H. deserticola is distinguished from H. petiolaris mainly by its numerous squamellae. The two plants are closely related.

EXISTING OR POTENTIAL THREATS: Potential industrial development (electric generating station, transmission corridors, and pipelines) and urban sprawl are threats to this species.

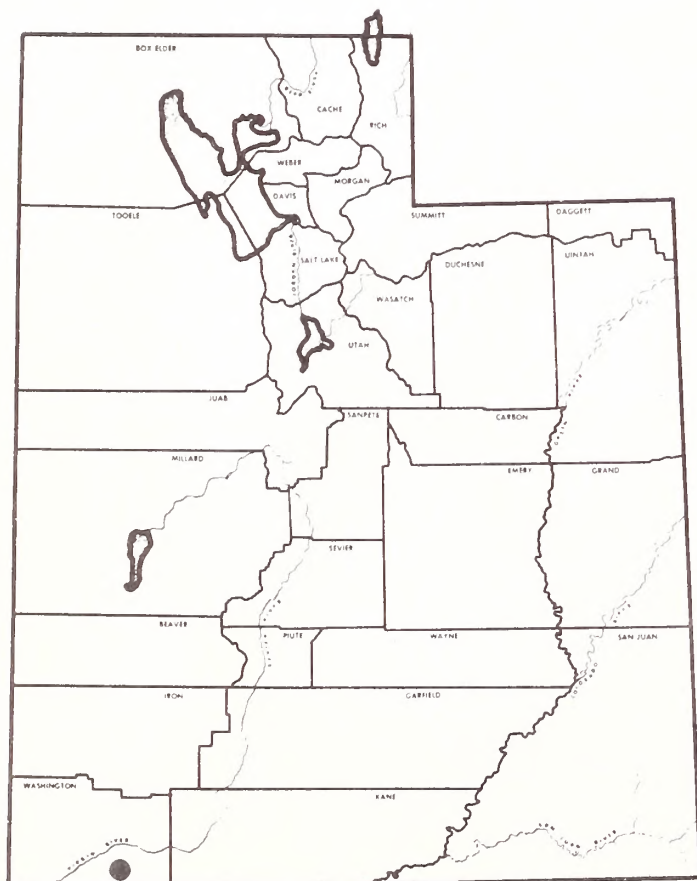
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management

REMARKS: The desert sunflower remains obscure, despite the presence of collections more than half a century old in herbaria of Utah.

RECOMMENDATIONS: The plant should be considered as endangered.

Helianthus deserticolus

cm



SCIENTIFIC NAME: Heterotheca jonesii (Blake) Welsh & Atwood

FAMILY: Asteraceae

CITATION: Great Basin Naturalist 35: 336. 1975.

SYNONYMS: Chrysopsis jonesii Blake. (Contr. U. S. Natl. Herb. 25: 536. 1925.)
Chrysopsis caespitosa M. E. Jones, not Nutt. (Proc. Calif. Acad. Sci. II 5: 694. 1895.)

STATUS: Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Jones golden aster

KNOWN DISTRIBUTION: Garfield and Washington cos., Utah

HABITAT: Gravelly, sandy limestone outcrops; ponderosa, Arctostaphylos community

ELEVATION: 9000 feet (2745 m)

DESCRIPTION: The plant is a caespitose perennial from a woody much branched root forming a dense mat; leaves spatulate, about 12 mm long, clustered on short stems, 2.5-5 cm long, villous but not hispid, not apiculate; inflorescence heads about 6 mm high, sessile; involucre ashy green, linear, somewhat unequal, inner bracts with purple hyaline margins, ligules yellow to golden, tubular flowers golden; fruit an achene.

TAXONOMIC PROBLEMS: Obscure

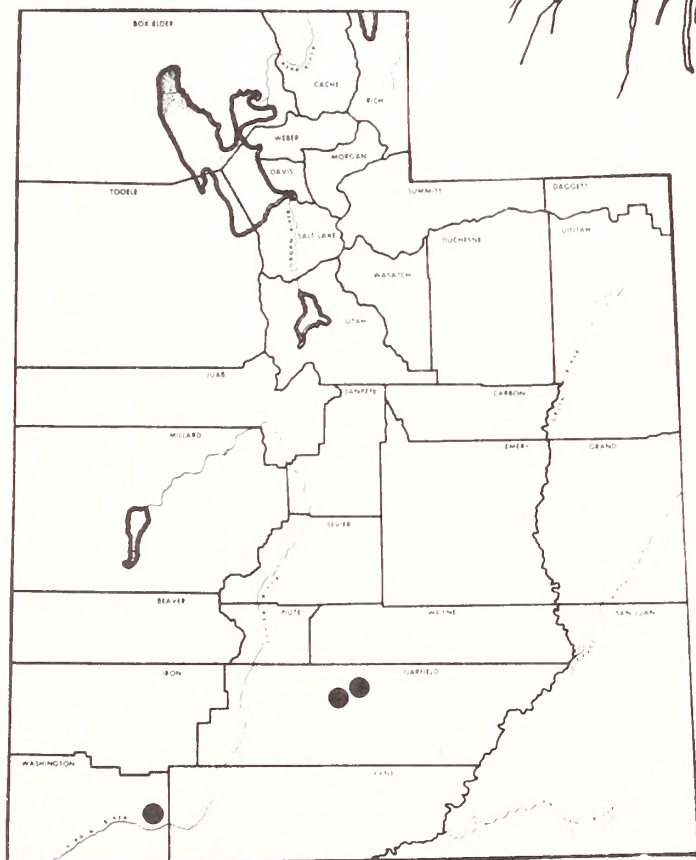
EXISTING OR POTENTIAL THREATS: Road construction is a potential danger.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

REMARKS: The Jones golden aster was previously known only from the type locality in Washington Co., but has not been collected there in many years.

RECOMMENDATIONS: The plant should be regarded as endangered, with one surviving population.

Heterotheca jonesii



SCIENTIFIC NAME: Hymenopappus filifolius Hook. var. tomentosus (Rydb.)
Turner

FAMILY: Asteraceae

CITATION: Rhodora 58: 237. 1956.

SYNONYMS: Hymenopappus tomentosus Rydb. (Bull. Torrey Bot. Club 27: 633.
1900.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended
as threatened by S. L. Welsh, 1978.

COMMON NAME: Cobweb hymenopappus

KNOWN DISTRIBUTION: Plants perennial, 30-70 cm tall, permanently densely
white tomentose, larger rosette leaves bipinnately parted with many
short filiform divisions; stem leaves 5-12, somewhat reduced; heads
4-14 per stem, subturbinate to campanulate, 30- to 40-flowered;
peduncles 1-6 cm long; principal involucral bracts 7-10 mm long,
densely tomentose; corollas all tubular, yellow, the tube densely
glandular; achenes evenly pubescent with hairs.

TAXONOMIC PROBLEMS: There are three varieties of H. filifolius to which
H. filifolius var. tomentosus is related. They are kept separate
mostly by geographic boundaries: var. lugens occurs at higher eleva-
tions; var. megacephalus occupies lower elevations; and var. pauciflorus
only comes in the southern periphery of the range of var. tomentosus.

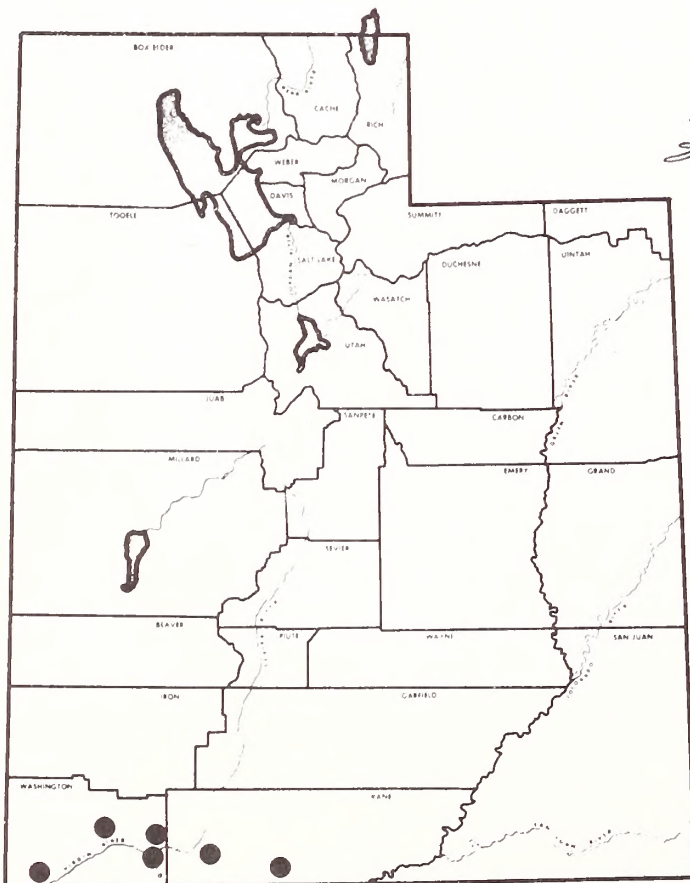
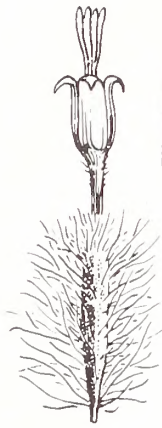
EXISTING OR POTENTIAL THREATS: Off-road vehicles and potential changes in
the land use are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; National Park Service;
Utah State; private

REMARKS: The cobweb hymenopappus occurs in sandy soil over a rather broad
range; it is seldom abundant.

RECOMMENDATIONS: Treat this plant as threatened until more information is
available.

Hymenopappus filifolius
var. tomentosus



SCIENTIFIC NAME: Machaeranthera glabriuscula (Nutt.) Cronq. & Keck
var. confertifolia Cronq.

FAMILY: Asteraceae

CITATION: Leaf1. W. Bot. 10: 11. 1963.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Kaiparowits daisy

KNOWN DISTRIBUTION: Garfield and Kane cos., Utah

HABITAT: Kaiparowits Formation, on barren clay slopes; pinyon and juniper community

ELEVATION: 6200 to 7000 feet (1891 to 2135 m)

DESCRIPTION: Perennial herb from a woody caudex; stems glabrous to villous puberulent, leafy on the top, 1-3 dm tall; leaves entire, alternate, not spinulose tipped; cauline leaves more developed than basal ones, wider than 3 mm; phyllaries appressed or merely loose; disk mostly 12-22 mm wide; receptacles naked; disk corollas yellow, 12 mm long; ligules white or cream, 10-15 mm long; pappus of barbellate bristles, nearly as long as the disk corolla; achenes 5 mm, light brown, hispid.

TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Oil and mineral exploration, coal operation, and industrial development are threats to this species.

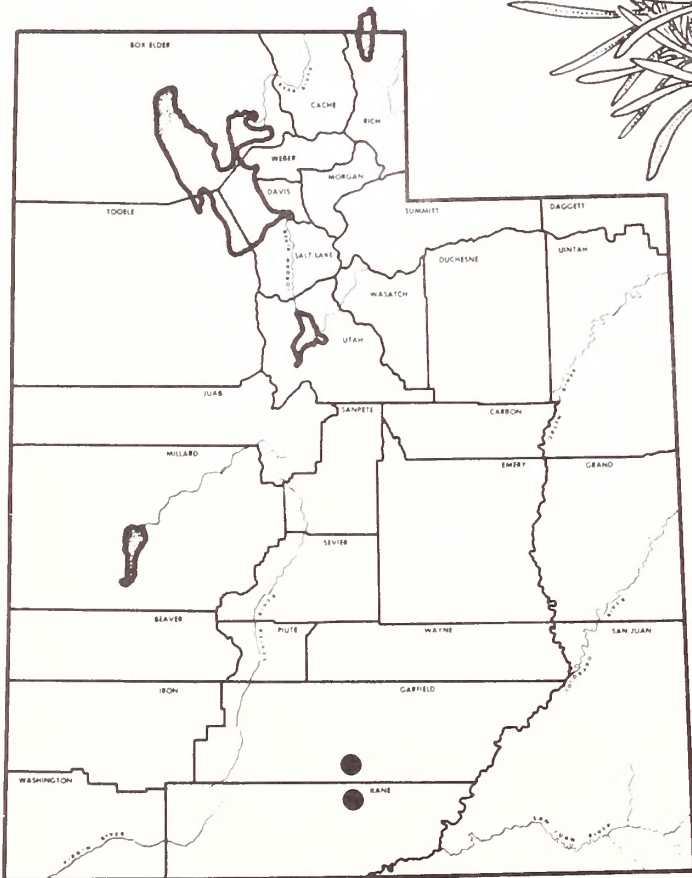
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: This plant survives on very harsh saline substrate exposed in the badlands topography of the Kaiparowits Formation.

RECOMMENDATIONS: This species should be regarded as threatened.

Machaeranthera glabriuscula var. confertifolia

1 cm



SCIENTIFIC NAME: Machaeranthera kingii (D. C. Eaton) Cronq. & Keck

FAMILY: Asteraceae

CITATION: Brittonia 9: 238. 1957.

SYNONYMS: Aster kingii D. C. Eaton (Rep. Geol. Explor. 40th parallel 5: 141. 1871.)

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: King woody aster

KNOWN DISTRIBUTION: Cache, Salt Lake, and Utah cos., Utah

HABITAT: Cliff faces, talus slopes, and gravelly north facing slopes;
douglas fir, white fir communities

ELEVATION: 6200 to 11,750 feet (1891 to 3575 m)

DESCRIPTION: Caespitose perennial, with a short woody caudex; stems glabrous below, glandular above, 4-13 cm tall; basal leaves petioled, 1-9.5 cm long, glabrous, spatulate to oblanceolate, entire or few-toothed; stem leaves few, oblanceolate; involucre 0.6-1 cm high, 8-15 mm wide; bracts attenuate, more or less squarrose; ligules white or pink, 6-10 mm long.

TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Proposed recreational expansion and industrial development pose potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: U.S. Forest Service; State (?); private

REMARKS: This species is an endemic of limestones at moderate to high elevations in the Wasatch Mountains.

RECOMMENDATIONS: Although rather widespread, the King woody aster is rather narrowly restricted and should be considered as threatened until more information is available.

Machaeranthera kingii



SCIENTIFIC NAME: Senecio dimorphophyllus Greene var. intermedius T. M. Barkley

FAMILY: Asteraceae

CITATION: Trans. Kansas Acad. Sci. 65: 362. 1962.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Intermediate groundsel

KNOWN DISTRIBUTION: San Juan Co., Utah

HABITAT: High alpine or subalpine meadows, swampy areas

ELEVATION: 10,000 to 10,500 feet (3050 to 3203 m)

DESCRIPTION: Perennial herb; stems 3-5 dm tall, erect, arising singly, glabrous; leaves somewhat subsucculent, blades ovate-rotund, subcordate or abruptly contracted to truncate at the base, petiole narrow; lower cauline leaves oblanceolate, or obovate to lanceolate, usually clasping; upper cauline leaves greatly reduced; inflorescence a corymbose cyme with 2-7 large heads; principal involucral bracts 6-8 mm long, reddish at the tips; ray florets 8-13 in number; ligules deep yellow; achenes glabrous.

TAXONOMIC PROBLEMS: S. dimorphophyllus var. intermedius appears to be intermediate between S. crocatus and S. dimorphophyllus, the lower cauline leaves and stature are similar to the former, but the size of the heads resemble the latter.

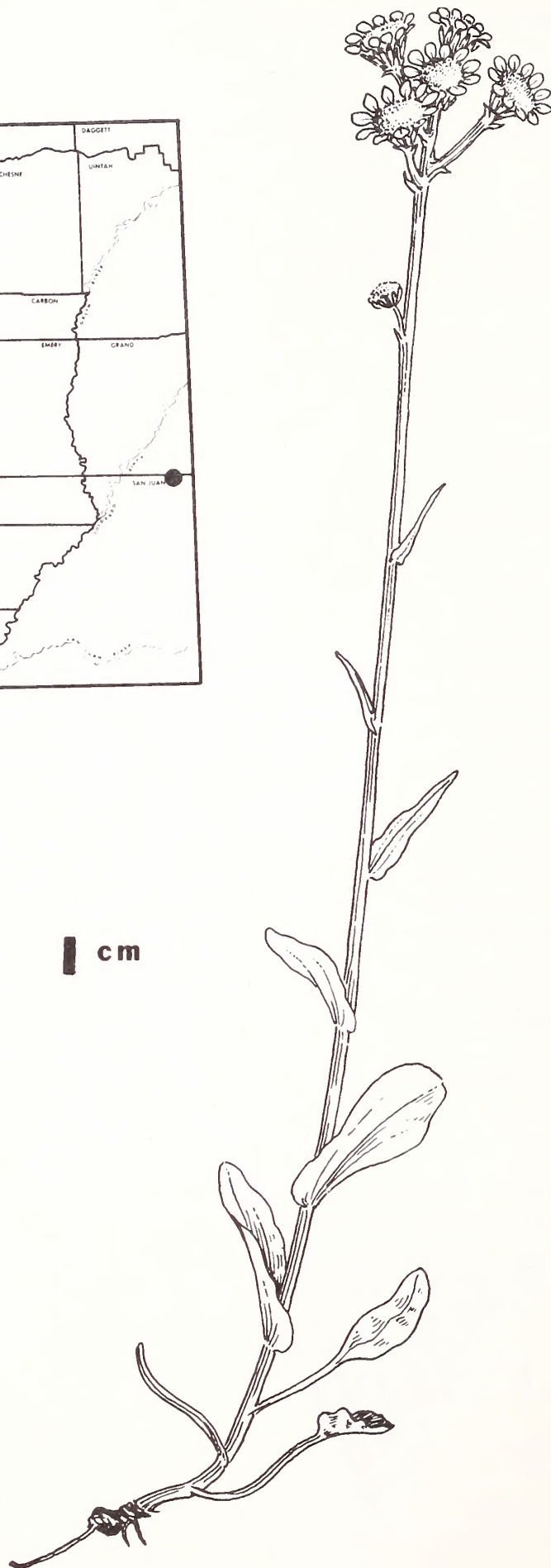
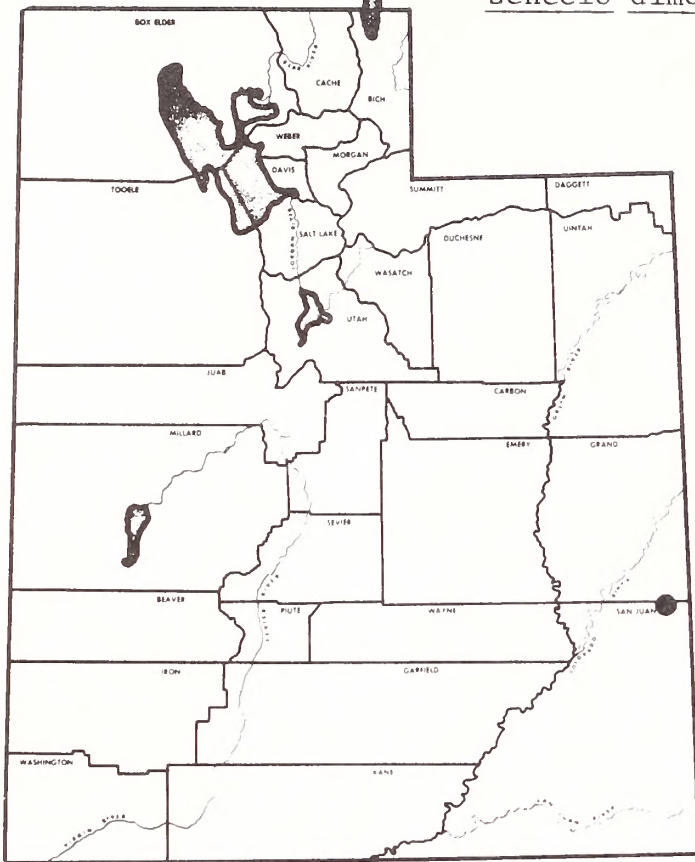
EXISTING OR POTENTIAL THREATS: Mineral exploration is a potential threat to this species.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

REMARKS: None

RECOMMENDATIONS: The intermediate groundsel should be regarded as threatened until information on total range and population numbers becomes available.

Senecio dimorphophyllus var. intermedius



SCIENTIFIC NAME: Sphaeromeria ruthiae Holmgren, Shultz and Lowrey

FAMILY: Asteraceae

CITATION: Brittonia 28: 257. 1976.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Zion tansy

KNOWN DISTRIBUTION: Washington Co., Utah

HABITAT: Navajo Sandstone Formation, in crevices of canyon walls in loosely cemented sandstone

ELEVATION: 4800 feet (1464 m)

DESCRIPTION: Aromatic, suffruticose perennial branching from a taproot; flowering stems several, weakly striate, 3-6 (7) dm tall, somewhat decumbent at base, sparsely tomentose-canescens below, more dense above; herbage tomentose-canescens with dolabriform hairs; leaves silver beneath, somewhat darker above, amply dotted with resinous glands; basal leaves 3-9 cm long, usually dissected into 3 segments, midvein prominent; cauline leaves usually entire, sometimes leafy bracted inflorescence; bracts densely tomentose, receptacle conical, naked; marginal flowers pistillate, central flowers perfect; corolla tubular, yellow, 1-2 mm long; pappus minute, densely glandular; achenes brown.

TAXONOMIC PROBLEMS: Related to S. diversifolia, S. ruthiae differs in the dense tomentum of the plant and the paniculately arranged heads.

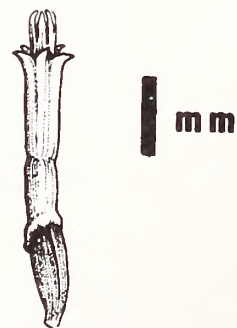
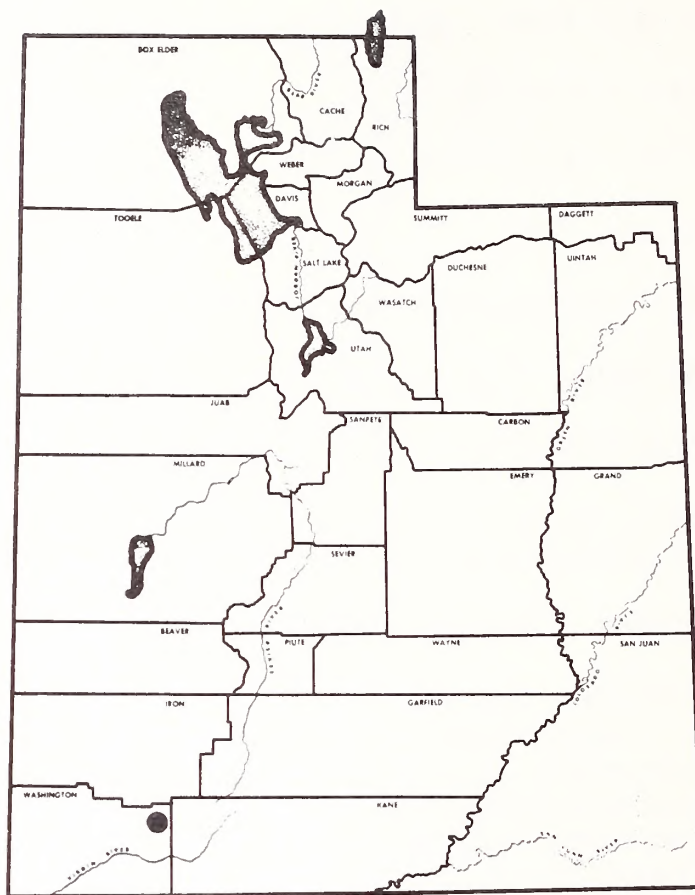
EXISTING OR POTENTIAL THREATS: Human activity, modification of trails, and interpretative facilities in the population area are a threat to this species.

LAND OWNERSHIP/MANAGEMENT: National Park Service

REMARKS: This cliff dwelling plant has been protected from the heat of the canyon floor and the ridges above because of its restricted niche.

RECOMMENDATIONS: This plant should be regarded as threatened.

Sphaeromeria ruthiae



SCIENTIFIC NAME: Townsendia aprica Welsh & Reveal

FAMILY: Asteraceae

CITATION: Brittonia 20: 375. 1968.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, July 1, 1975. Proposed as endangered, Federal Register, June 16, 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Last chance townsendia

KNOWN DISTRIBUTION: Sevier Co., Utah

HABITAT: Arapien Shale, scattered lava boulders in sandy soil; mixed juniper-pinyon grasslands community.

ELEVATION: 6500 to 8000 feet (1983 to 2440 m)

DESCRIPTION: Plant a perennial, caespitose herb from a branching caudex, 2-6 cm wide, less than 2.5 cm tall; leaves oblanceolate, entire, with a mucronate apex, strigose on both sides, 6-7 mm long, 1-3.5 mm wide; flower heads sessile, involucre 4-8 mm high, 7-13 mm wide, involucre bracts in 3-4 series; ray flowers yellow, 4-7 mm long, disk corollas purplish, 3.7-4.5 mm long; achenes laterally compressed, pappus of ray flowers 0.7-1 mm long, pappus of disk flowers 4-5 mm long.

TAXONOMIC PROBLEMS: Closely related to T. montana Nutt. var. minima (Eastw.) Beaman and T. mensana M. E. Jones var. jonesii Beaman; it is distinguished by its pulvinate habit and yellow to golden rays.

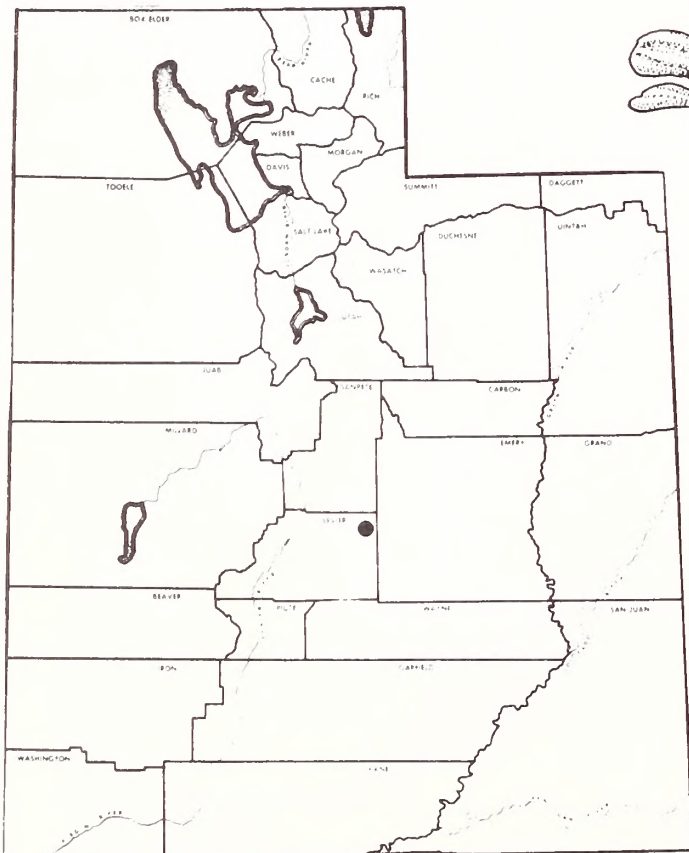
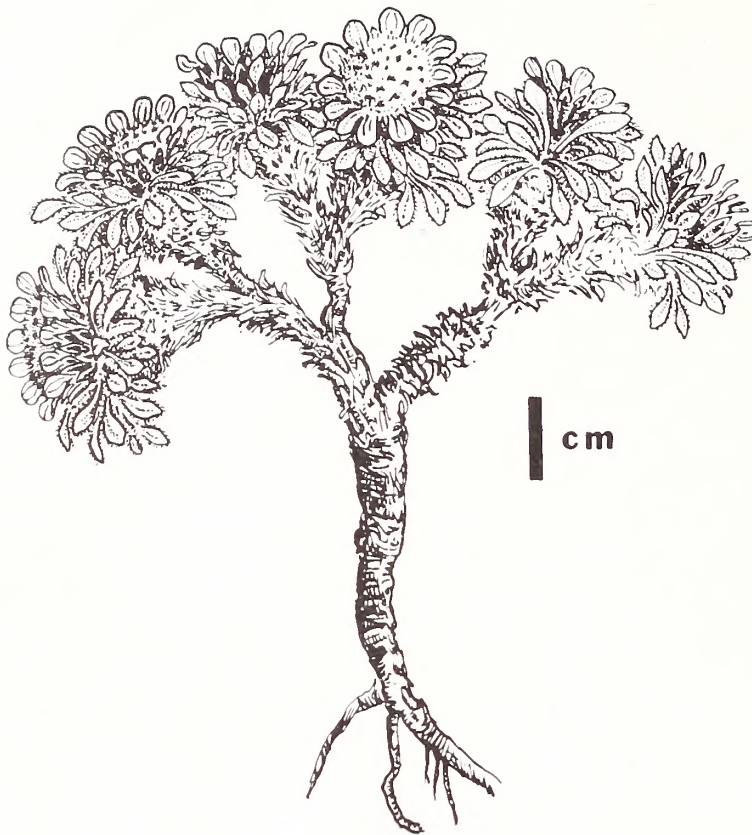
EXISTING OR POTENTIAL THREATS: One population is known to have been exterminated by gypsum mining.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; private

REMARKS: Only two populations of T. aprica are known; the one was removed in a gypsum mining operation. The other is along a livestock driveway and is being trampled to oblivion.

RECOMMENDATIONS: Endangered; steps to protect the only extant population should be undertaken.

Townsendia aprica



SCIENTIFIC NAME: Townsendia mensana M. E. Jones

FAMILY: Asteraceae

CITATION: Contr. W. Bot. 13: 15. 1910.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME:

KNOWN DISTRIBUTION: Duchesne and Uintah cos., Utah

HABITAT: Dry rocky areas, rocky or heavy clay soils; pinyon-juniper mesas

ELEVATION: 6000 to 7500 feet (1830 - 2288 m)

DESCRIPTION: Rosulate-pulvinate caespitose perennial herbs from a much branched subterranean caudex arising from a woody tap root, upper branches of the caudex clothed with marcescent leaf bases; leaves narrowly oblanceolate to linear, entire, acute, strigose on both surfaces, involute, 6-14 mm long, abaxial surface of the leaf blades densely woolly; flowers sessile; involucre obconical at base, 6-9.5 mm across, 5-9 mm high, imbricate, green, glabrous to sparsely glandular or lightly strigose; ray corollas whitish or pinkish, 5-7.5 mm long, 1.4 mm wide, tube corollas yellow to pink tinged at the tip, 3.5-4.8 mm long; achenes oblanceolate, compressed, densely pubescent on all surfaces with glochidiate bristles, pappus of the ray flowers of barbellate bristles disk pappus similar but shorter.

TAXONOMIC PROBLEMS: None

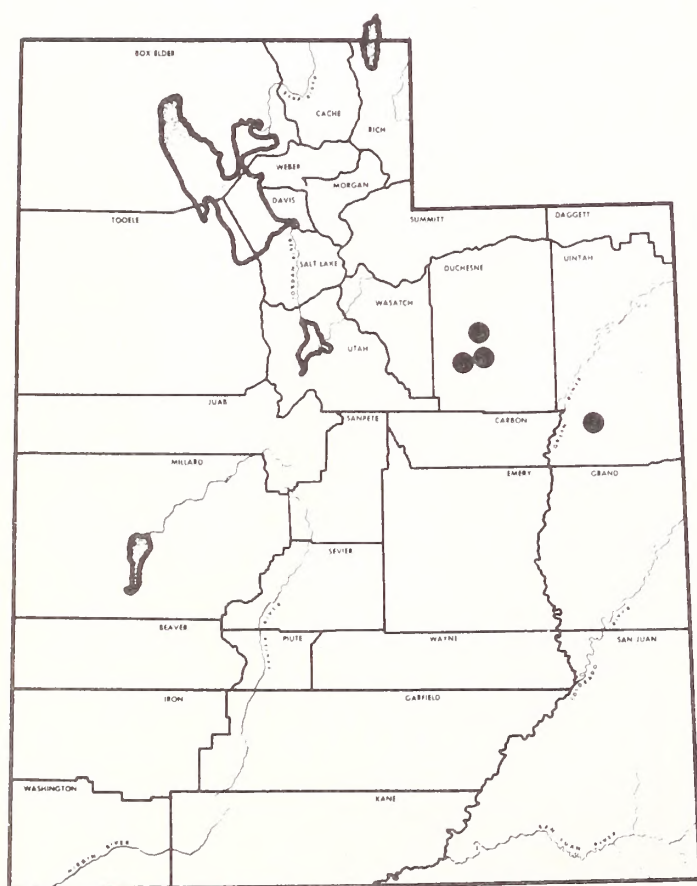
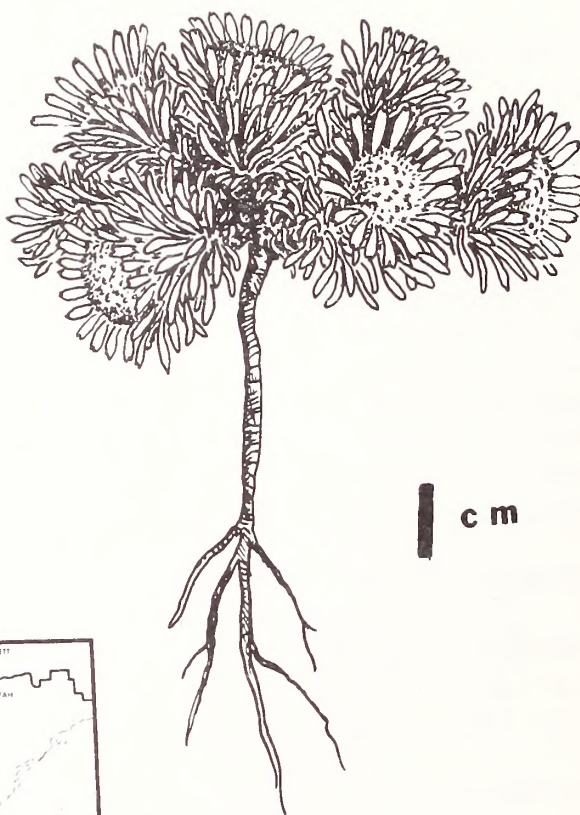
EXISTING OR POTENTIAL THREATS: Mineral exploration and exploitation, industrial development and expansion, and changes in land use are all threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: T. mensana is endemic to the Uinta Basin and tends to be associated with other unusual species.

RECOMMENDATIONS: The plant should be regarded as threatened until more information is available.

Townsendia mensana



SCIENTIFIC NAME: Townsendia minima Eastw.

FAMILY: Asteraceae

CITATION: Leaf1. W. Bot. 1: 206. 1936.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Least townsendia

KNOWN DISTRIBUTION: Garfield and Kane cos., Utah

HABITAT: Pink Limestone Member of the Wasatch Formation, dry open slopes and rocky outcrops, rocky soil; scattered ponderosa, white fir, and bristle cone pine community

ELEVATION: 7000 to 9196 feet (2135 to 2806 m)

DESCRIPTION: Low mat forming plant, caudex branching underground from a straight tap root; leaves in rosettes surrounding and almost concealing the small sessile heads, spatulate to oblanceolate, rather thick, appressed pubescence; heads about 4 mm in diameter, 8 mm high, bracts of the involucre in 3-4 series, obtuse, membranously margined, ciliate; receptacle honey-combed; rays light rose, sterile with outer pappus half as long as the inner, the latter equaling the pappus of the fertile disk-flowers which surpasses the tubular 4-toothed corolla; achenes oblanceolate with some sparse, fine spreading hairs.

TAXONOMIC PROBLEMS: None

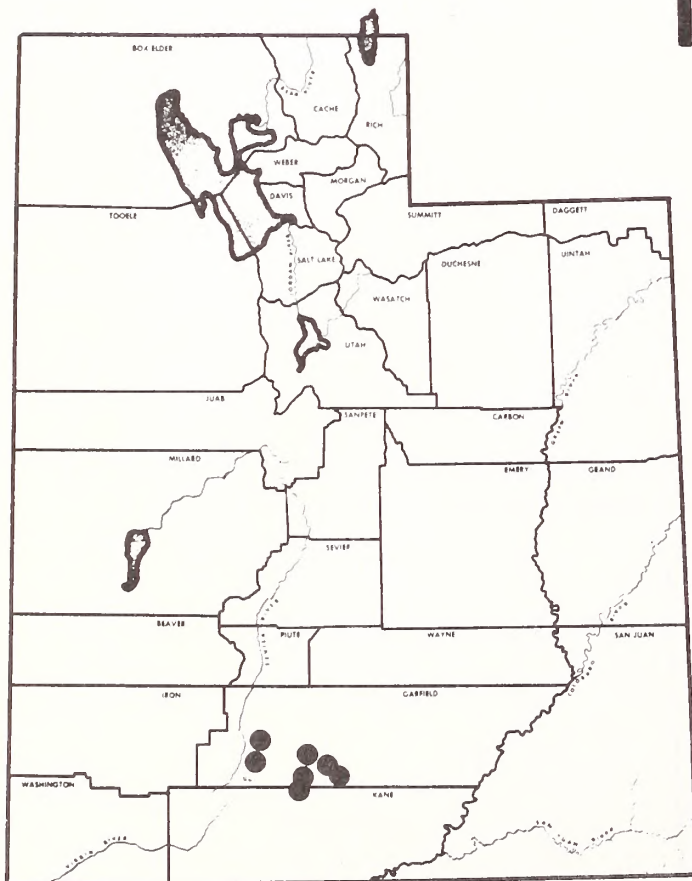
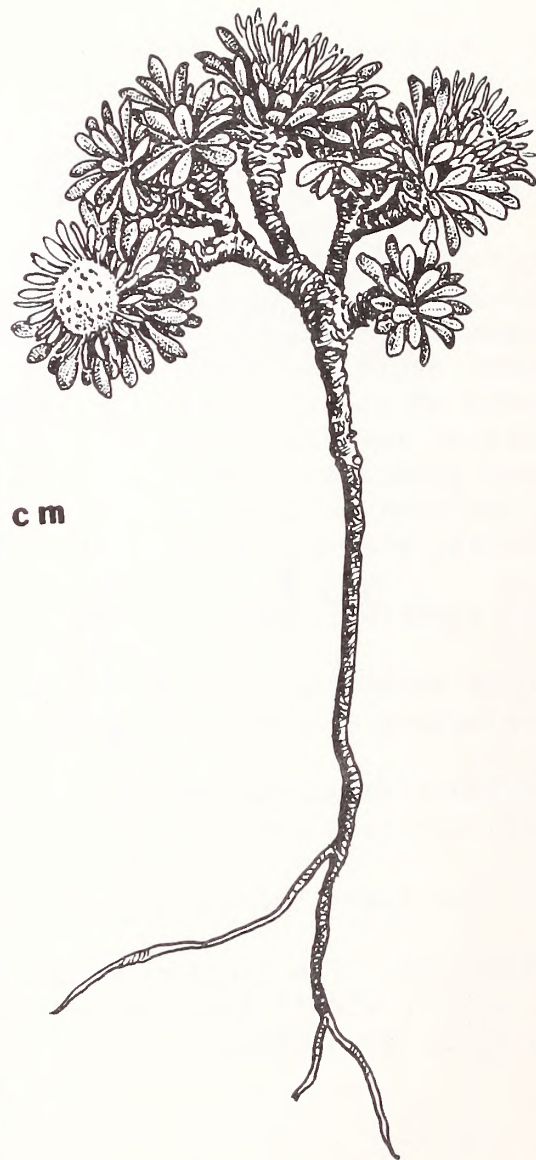
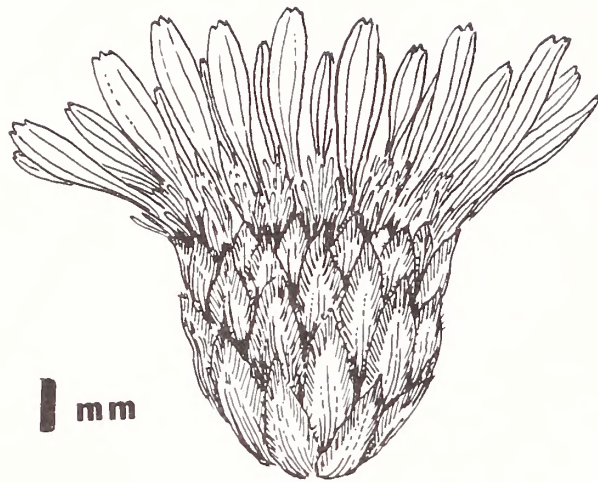
EXISTING OR POTENTIAL THREATS: Limestone exploitation and industrial development are threats to this species.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service; Bureau of Land Management; National Park Service

REMARKS: The least townsendia is a obligate calciphile.

RECOMMENDATIONS: The species should be regarded as threatened even though it is more widely distributed than other endemics with which it is partially sympatric.

Townsendia minima



SCIENTIFIC NAME: Viguiera soliceps Barneby

FAMILY: Asteraceae

CITATION: Leaf1. W. Bot. 10: 316. 1966.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Paria sunflower

KNOWN DISTRIBUTION: Kane Co., Utah

HABITAT: Tropic Shale Formation, gumbo clay soil, knolls and bluffs; salt desert shrub community

ELEVATION: 4400 to 4700 feet (1342 to 1434 m)

DESCRIPTION: Annual herbs, 17-39 cm tall, branching from near the base; leaves alternate, the blades 1-5 cm long, 2-23 mm wide, ovate to linear, strigose, entire, peduncles terminal, scapose, 7-30 cm long or more, each with one head; involucre biserial; bracts lance-acuminate, 5-6 mm long, strigose; receptacle hemispheric; rays 10-12, broadly lance-elliptic, yellow, 6-10 mm long; disk flowers about 5 mm long; achenes narrowly clavate.

TAXONOMIC PROBLEMS: Related to V. annua, V. soliceps is easily separated by the branching pattern (from the base) and the long scapose peduncles and single head.

EXISTING OR POTENTIAL THREATS: Potential railroad construction; power corridor; coal, oil, and gas exploration; and off-road vehicles are threats to this plant.

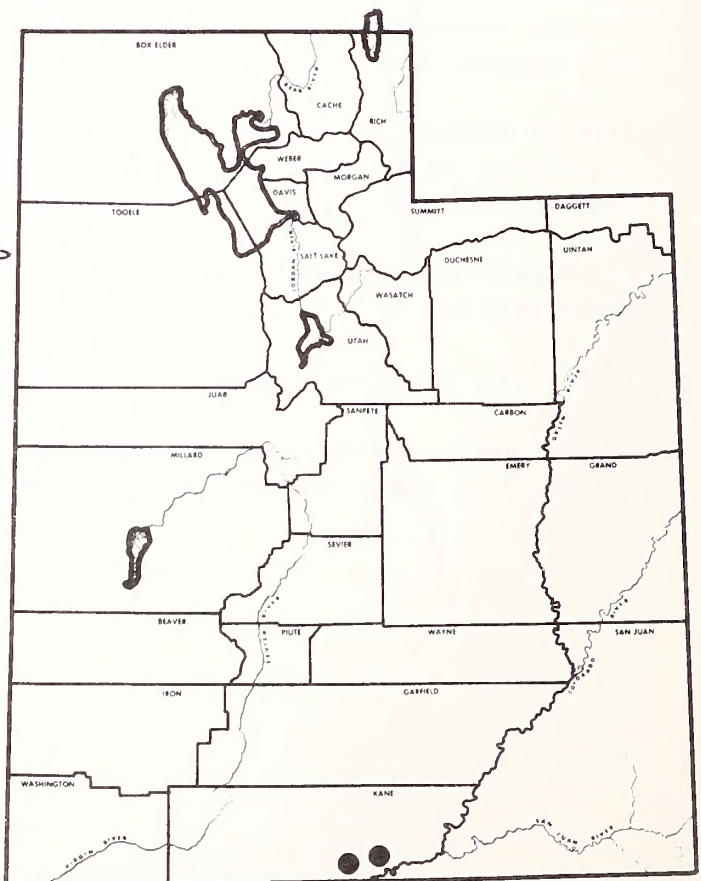
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State; National Park Service

REMARKS: This singular species is abundant in years of adequate moisture.

RECOMMENDATIONS: Because it is unknown outside of its habitat on Tropic Shale, the plant should be regarded as endangered.



Viguiera soliceps



SCIENTIFIC NAME: Cryptantha barnebyi I. M. Johnston

FAMILY: Boraginaceae

CITATION: Jour. Arnold Arboretum 29: 240. 1948.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, July 1, 1975. Not listed in Federal Register, June 16, 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Barneby catseye

KNOWN DISTRIBUTION: Uintah Co., Utah

HABITAT: Green River Shale Formation; Atriplex, Sarcobatus, pinyon-juniper community.

ELEVATION: 5000 to 6000 feet (1525 to 1830 m)

DESCRIPTION: Plant perennial; stem stout, erect, usually several, conspicuously yellow hispid; leaves oblanceolate, thick, acute, 5-9 cm long, 0.5-1.4 cm wide; petioles conspicuously ciliate; inflorescence narrow, 1-1.5 dm long, densely yellowish hispid, foliose bracts evident, calyx segments lanceolate; corolla bright yellow, campanulate; nutlets 4, ovate, smooth and glossy on both surfaces.

TAXONOMIC PROBLEMS: Most closely related to C. johnstonii, this plant may be distinguished by its stout, thick stem, harsher hispid pubescence, campanulate corolla, and woody caudex.

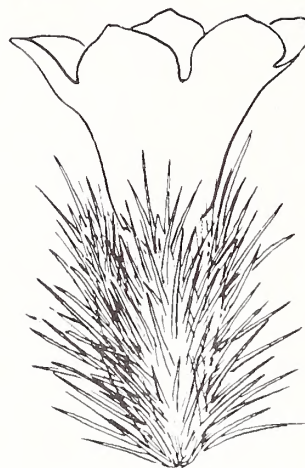
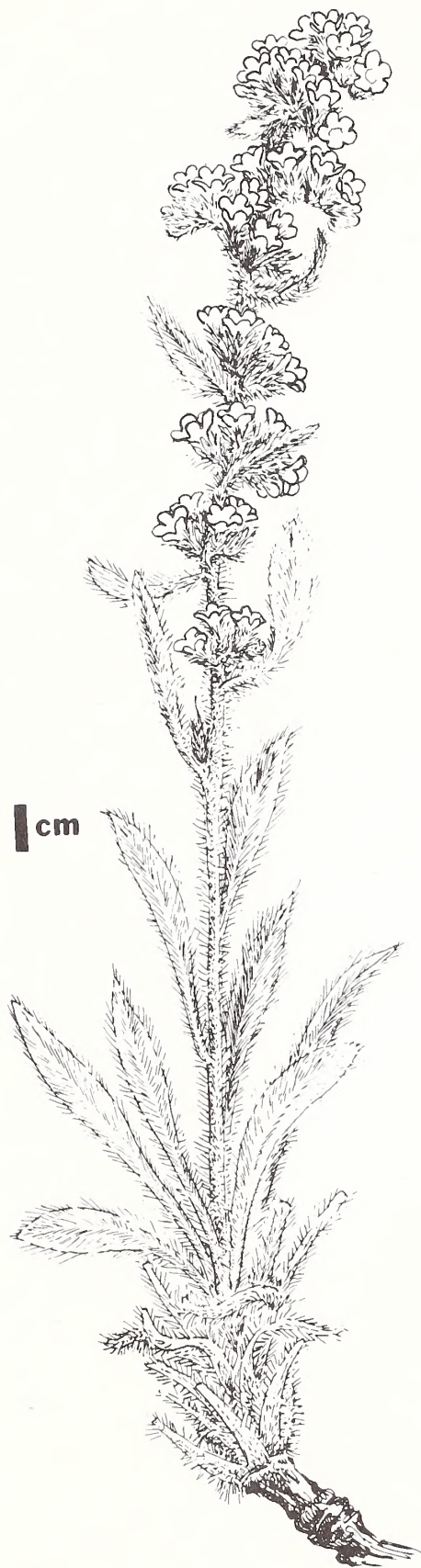
EXISTING OR POTENTIAL THREATS: General exploitation of the area for oil, building stone, and other minerals are potential threats to this plant.

LAND OWNERSHIP/MANAGEMENT: Utah State; Bureau of Land Management; Naval Oil Reserve

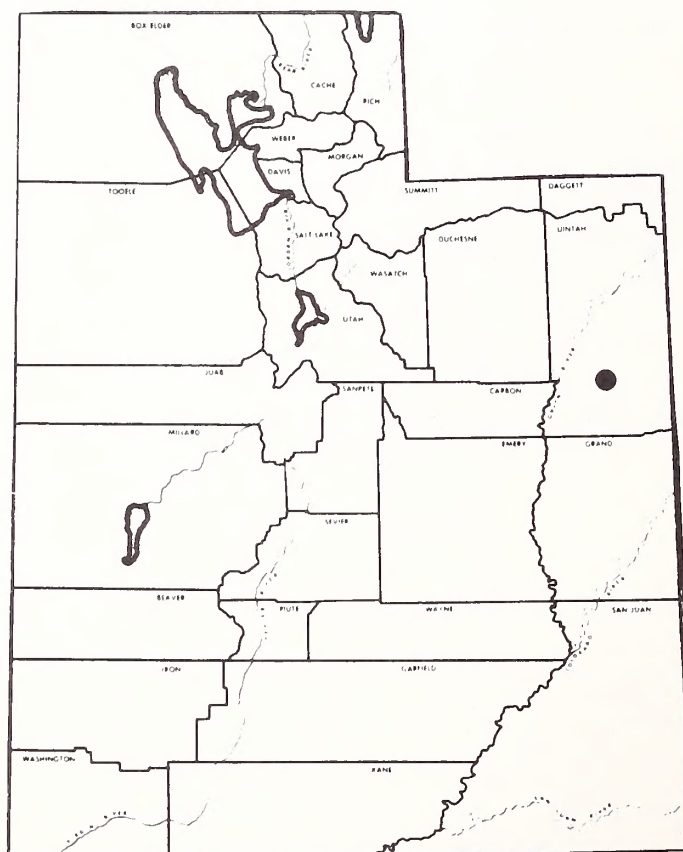
REMARKS: The five known populations are endemic to white shale knolls.

RECOMMENDATIONS: Exclude all industrial development from critical habitat area.

Cryptantha barnebyi



1 mm



SCIENTIFIC NAME: Cryptantha compacta Higgins

FAMILY: Boraginaceae

CITATION: Great Basin Naturalist 28: 196. 1968.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975.
Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Compact catseye

KNOWN DISTRIBUTION: Millard Co., Utah

HABITAT: Sevy Dolomite Formation, gravelly loam, open slopes and ridges, outcropping covered with shallow soil layer; desert shrub and grass-land community

ELEVATION: 5000 to 6500 feet (1525 to 1983 m)

DESCRIPTION: Densely caespitose perennial, 1-3 dm tall; stems numerous from a woody root, tomentose below, weakly strigose; leaves oblanceolate to spatulate, 0.5-2 cm long, dorsal surface with appressed setose pustulate bristles and densely strigose on both sides; petiole tomentose; inflorescence narrow capitate, 1-5 cm long; foliar bracts evident but not conspicuous; calyx densely white setose; flowers yellow, 4-5 mm wide; style equaling or shorter than mature fruit; nutlet 2.5-3 mm long, only 1 or 2 maturing, muricate.

TAXONOMIC PROBLEMS: Cryptantha compacta is most closely related to C. nana, but it differs in its more compact and caespitose habit, and smaller flowers.

EXISTING OR POTENTIAL THREATS: Changes in land use and industrial development are threats to this species.

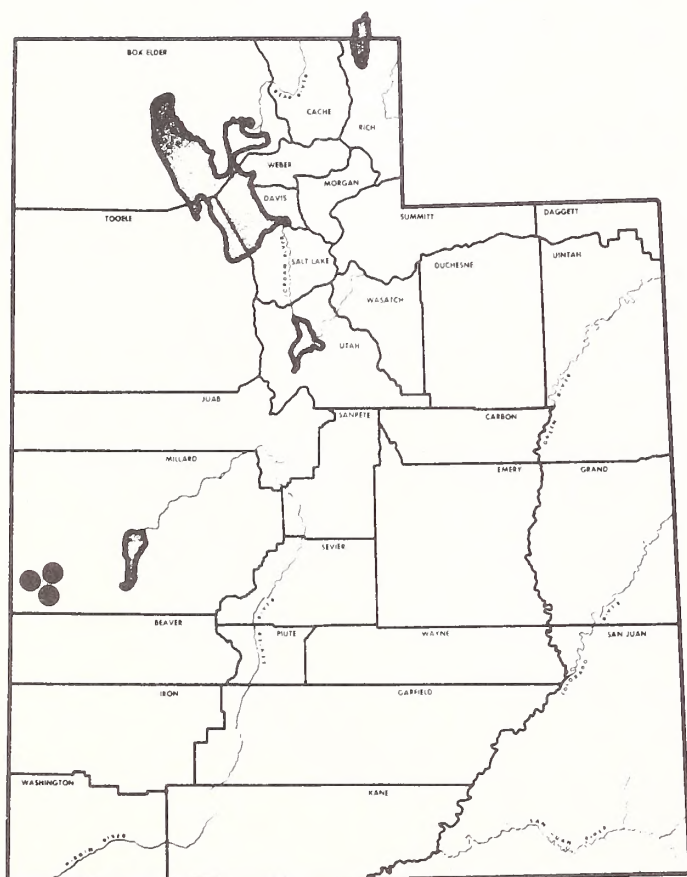
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; U. S. Forest Service

REMARKS: This catseye species grows with Eriogonum eremicum, Sphaeralcea caespitosa, Penstemon nanus and several other restricted species.

RECOMMENDATIONS: The species should be regarded as threatened.

Cryptantha compacta

cm



SCIENTIFIC NAME: Cryptantha elata (Eastw.) Payson

FAMILY: Boraginaceae

CITATION: Ann. Missouri Bot. Gard. 14: 285. 1927.

SYNONYMS: Oreocarya elata Eastw. (Bull. Torrey Club 30: 241. 1903).

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Tall catseye

KNOWN DISTRIBUTION: Grand Co., Utah; Mesa Co., Colorado

HABITAT: Mancos Shale Formation, heavy clay soil; Atriplex and mixed desert shrub community

ELEVATION: 1400 to 5500 feet (424 to 1678 m)

DESCRIPTION: Biennial or short lived perennial, 3-5 dm tall, stems 1-6, erect stout, weakly setose with spreading white hairs; leaves oblanceolate to spatulate, 2-5 cm long, 0.4-1.3 cm wide, apices acute to obtuse, the blade tapering abruptly to the narrow petiole, setose pustulate; inflorescence spreading in age, setose, foliar bracts inconspicuous; calyx 3-4.5 mm long, hirsute; corolla white, 3.5-5 mm long, 6-8 mm wide; nutlets lance-ovate, all maturing, tuberculate, style exceeding mature fruits.

TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Highway construction and industrial development are potential threats to this species.

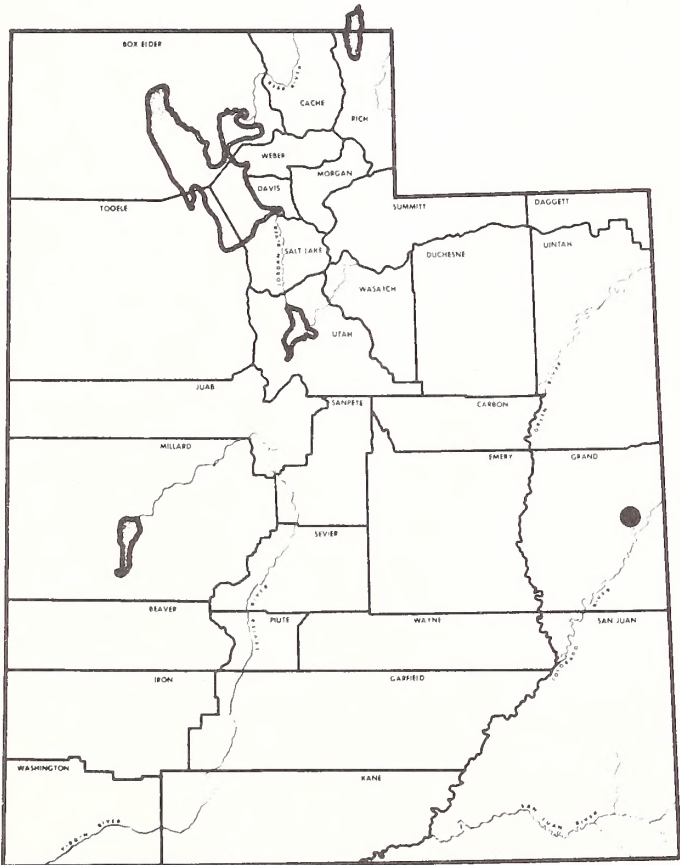
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management

REMARKS: There is only one known population of tall catseye in Grand Co., Utah.

RECOMMENDATIONS: This plant should be treated as threatened.

Cryptantha elata

1 cm



SCIENTIFIC NAME: Cryptantha grahamii Johnst.

FAMILY: Boraginaceae

CITATION: Journ. Arn. Arb. 20: 391. 1939.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, July 1, 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Graham catseye

KNOWN DISTRIBUTION: Uintah and Duchesne cos., Utah

HABITAT: Green River Shale Formation; shaley hillsides, sandy soil; desert shrub community

ELEVATION: 1700 to 6300 feet (600 to 1922 m)

DESCRIPTION: Perennial from a thick woody taproot; stems several, 0.4-1.2 dm tall, weakly spreading setose; leaves spatulate to oblanceolate, 2-4.5 cm long, 0.4-1 cm wide, conspicuously setose pustulate on both surfaces; inflorescence narrow, setose, foliar bracts evident; calyx segments lanceolate, 5-7 mm long, setose; corolla white, 3.5-5 mm long, 11-15 mm wide; nutlets lanceolate, narrowly linear, margin not elevated; style exceeds mature fruit.

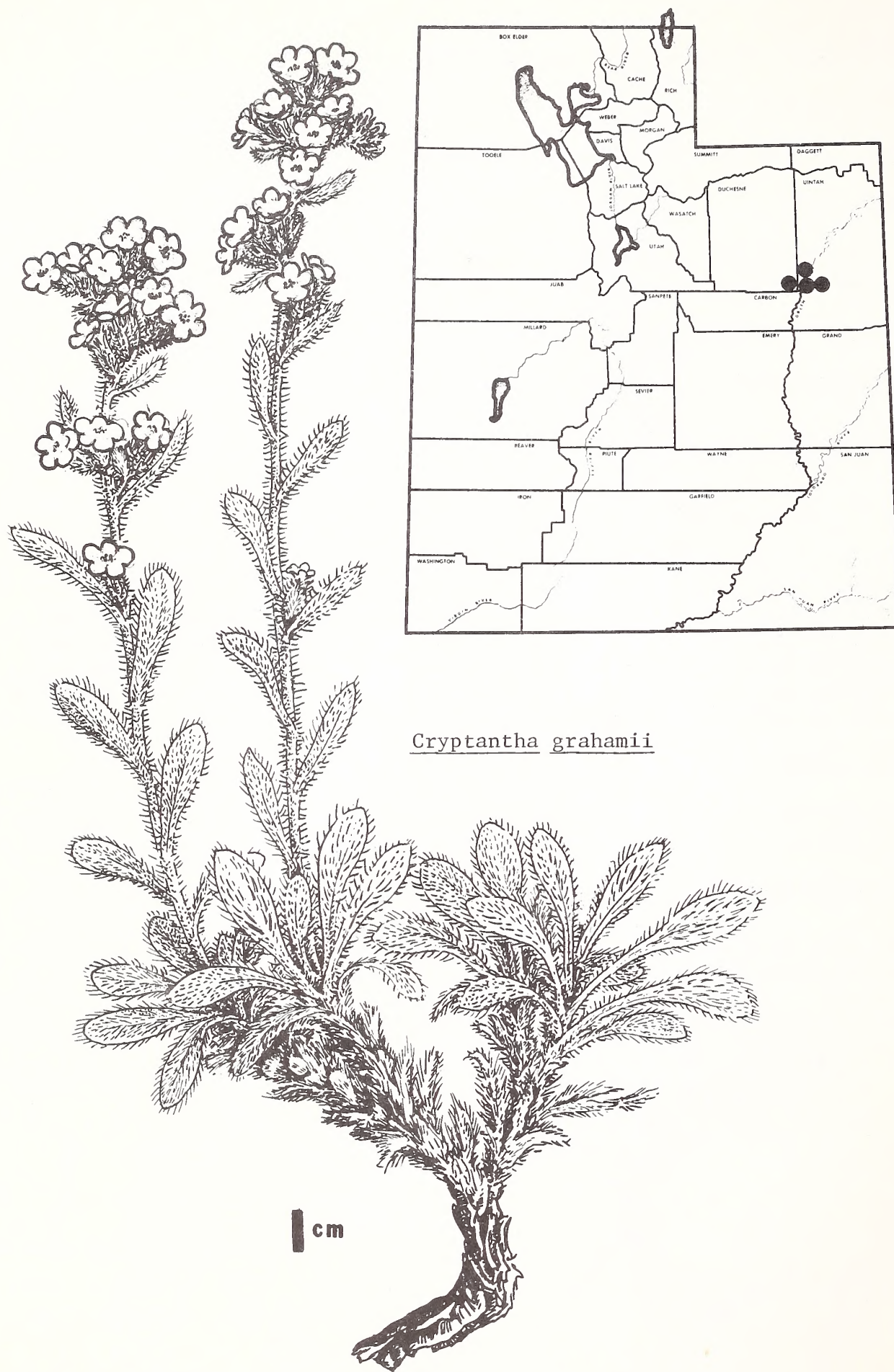
TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Oil shale development, mineral exploration, and industrial development are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: The Graham catseye is part of a unique flora occupying the soils of the Green River Shale Formation.

RECOMMENDATIONS: This species should be treated as threatened.



Cryptantha grahamii

SCIENTIFIC NAME: Cryptantha johnstonii Higgins

FAMILY: Boraginaceae

CITATION: Great Basin Naturalist 28: 195. 1968.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Johnston catseye

KNOWN DISTRIBUTION: Emery Co., Utah

HABITAT: Carmel Formation, sandy clay soil on low rolling hills

ELEVATION: 5200 to 6000 feet (1586 to 1830 m)

DESCRIPTION: Plants perennial, caespitose, 1-2.5 dm tall; stems several, from the branched caudex, weakly strigose; leaves oblanceolate, apices obtuse to acute, 2-6.5 cm long, 0.4-1 cm wide, upper surface strigose with conspicuous pustulate hairs; inflorescence somewhat open, foliar bracts evident, 1-2 cm long; calyx segments linear-lanceolate, 5-10 cm long, strigose and spreading white setose; pedicels 0.5-1 mm long; corolla white, tube 12-15 mm long, flaring, limb 13-17 mm broad; style exceeding mature fruit; nutlets ovate, usually all four maturing, surfaces smooth and glossy.

TAXONOMIC PROBLEMS: Related to C. confertiflora, this plant can be distinguished by its smaller size, longer and more open inflorescence, and larger white flowers.

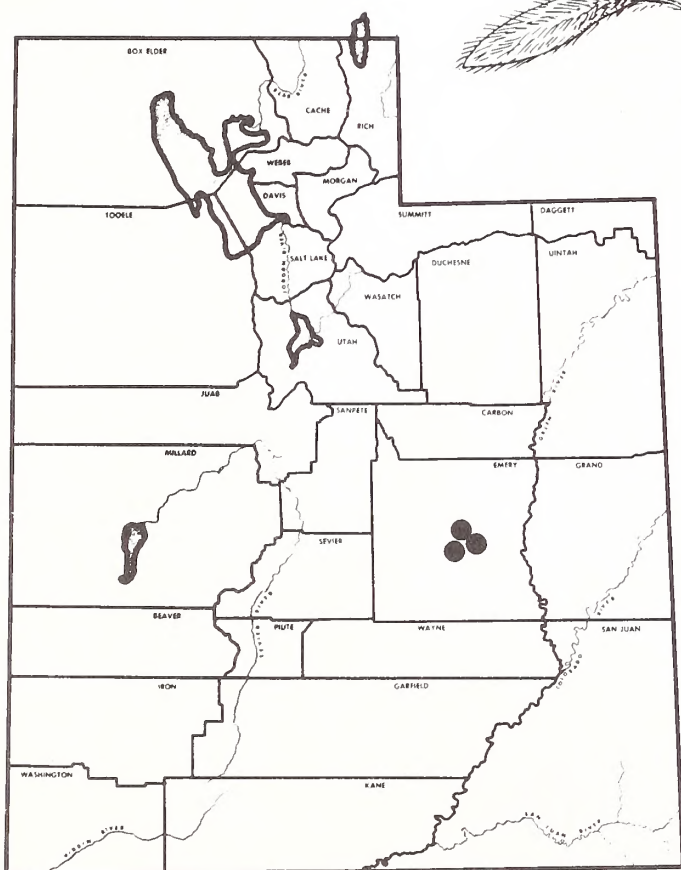
EXISTING OR POTENTIAL THREATS: Proposed industrial development is a potential threat to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: The Johnston catseye is confined to the Carmel Formation and ravines cut to the top of the Navajo Sandstone Formation

RECOMMENDATIONS: Development in this area should be allowed only in those areas which are demonstrated not to support C. johnstonii.

Cryptantha johnstonii



SCIENTIFIC NAME: Cryptantha jonesiana (Payson) Payson

FAMILY: Boraginaceae

CITATION: Ann. Missouri Bot. Gard. 14: 323. 1927.

SYNONYMS: Oreocarya jonesiana Payson. (Univ. Wyo. Publ. Bot. 1: 168. 1926).

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Jones catseye

KNOWN DISTRIBUTION: Emery Co., Utah

HABITAT: Sinbad Member of the Moenkopi Formation, clay soil; pinyon-juniper and mixed desert shrub community

ELEVATION: 5200 to 6200 feet (1586 to 1891 m)

DESCRIPTION: Coarse caespitose perennials, 0.5-1.5 dm tall; stems many, arising from a thick woody caudex, setose; leaves spatulate, 1-4 cm long, 0.4-1.3 cm wide, coarsely appressed setose-pustulate, leaf bases also setose with dense white hairs; inflorescence narrow, somewhat capitate, with 1-3 flowers in the axils of the bracts below the terminal cluster; calyx segments lanceolate to linear, 5-7 mm long, densely setose with ascending yellow bristles; corolla white, 10-15 mm long, campanulate, 9-13 mm wide; nutlets lanceolate, 3.5-4.5 mm long, densely muricate, scar narrow without an elevated ridge, style exceeds nutlets.

TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Possible industrial development and changes in land use are threats to this species.

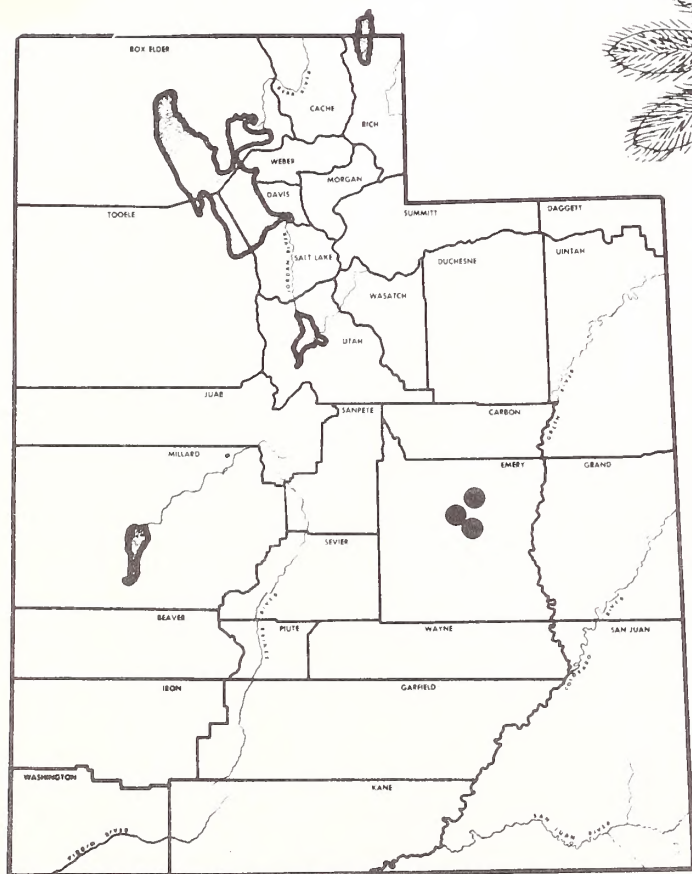
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: The plant is locally abundant on "barrens" sections of the Moenkopi Formation.

RECOMMENDATIONS: The "barrens" of the San Rafael Swell should be avoided in all construction activities.

Cryptantha jonesiana

1 cm



SCIENTIFIC NAME: Cryptantha ochroleuca Higgins

FAMILY: Boraginaceae

CITATION: Great Basin Naturalist 28: 197. 1968.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Yellow-white catseye

KNOWN DISTRIBUTION: Garfield Co., Utah

HABITAT: Pink Limestone Member of the Wasatch Formation, rocky outcrops; scattered ponderosa, bristle cone pine community

ELEVATION: 6500 to 8000 feet (1983 to 2440 m)

DESCRIPTION: Low growing perennial to 1 dm tall; stems several, strigose; leaves linear-oblongate to oblongate, apices usually acute, 1-2.5 cm long, 0.1-0.3 cm wide, densely strigose; petiole white-hairy; inflorescence narrow; calyx segments linear-lanceolate, setose; flowers pale yellow, tube 2-2.5 mm long, limb 4-5 mm wide; style included; nutlets 2.5-3 mm long, usually only one maturing, rugose.

TAXONOMIC PROBLEMS: C. ochroleuca is related to C. nana and C. caespitosa but differs from the former by its shorter calyx, pale yellow flowers and rugose seed, and from the latter by its less caespitose habit and woody taproot.

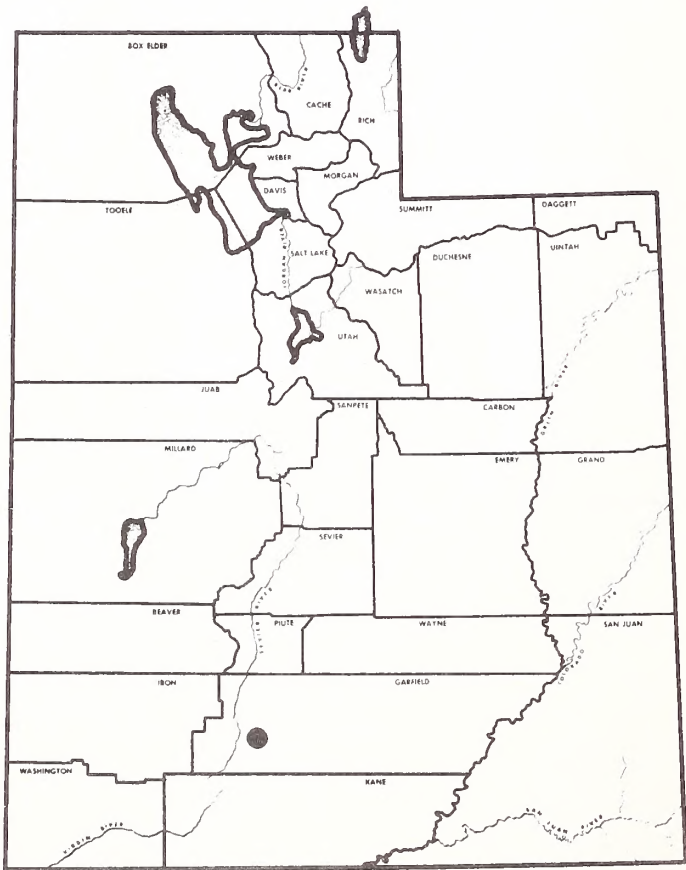
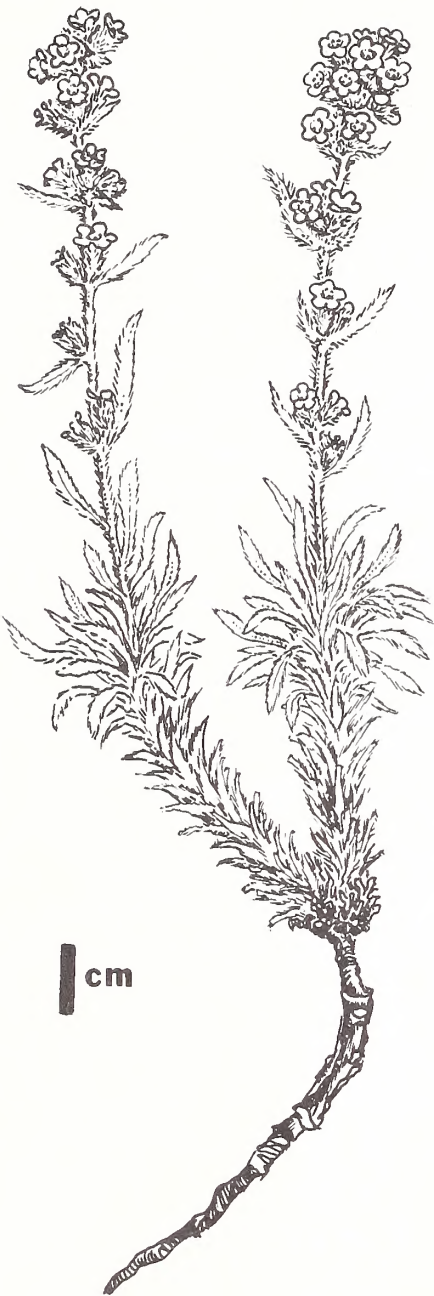
EXISTING OR POTENTIAL THREATS: Changes in the land use and limestone exploitation are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: National Park Service

REMARKS: This local species is apparently confined to the Pink Limestone Member of the Wasatch Formation.

RECOMMENDATIONS: Portions of the Pink Limestone Member of the Wasatch Formation should be preserved as a natural area.

Cryptantha ochroleuca



SCIENTIFIC NAME: Mertensia viridis A. Nels. var. cana (Rydb.) L. O. Williams

FAMILY: Boraginaceae

CITATION: Ann. Missouri Bot. Gard. 24: 115. 1937.

SYNONYMS: Mertensia cana Rydb. (Bull. Torrey Bot. Club 36: 698. 1909.)
Mertensia canescens Rydb. (Bull. Torrey Bot. Club 31: 640. 1904.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Canescent bluebell

KNOWN DISTRIBUTION: Daggett, Duchesne, Summit, and Uintah cos., Utah

HABITAT: Precambrian quartzite; alpine tundra and krummholz communities on rock stripes and humus

ELEVATION: 10,000 to 12,200 feet (3050 to 3721 m)

DESCRIPTION: Stems ascending from a branching woody caudex; basal leaves lanceolate, 1.5-3 cm long, 0.5-1 cm broad, glabrous below, strigose above, petiole longer than the blade; cauline leaves linear to narrowly ovate, more or less densely canescent on both surfaces, somewhat involute; inflorescence a crowded modified scorpioid cyme; pedicels strigose; calyx 2-6 mm long, divided almost to the base, strigose; corolla tube 3-9 mm long, corolla limb 4-9 mm long, somewhat expanded, fornicies conspicuous, glabrous to densely pubescent; style various, exceeding the anthers and about as long as the corolla to shorter than the tube; nutlets 2-3, rugose.

TAXONOMIC PROBLEMS: M. viridis var. cana is distinguished from its near relative, M. viridis var. dilatata, by the white pubescence on its leaves and stem.

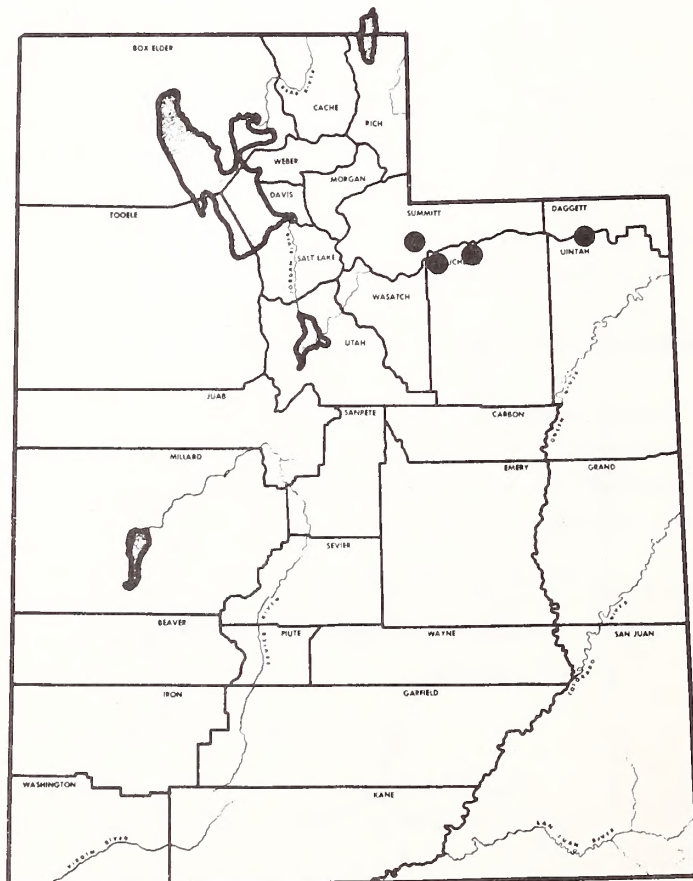
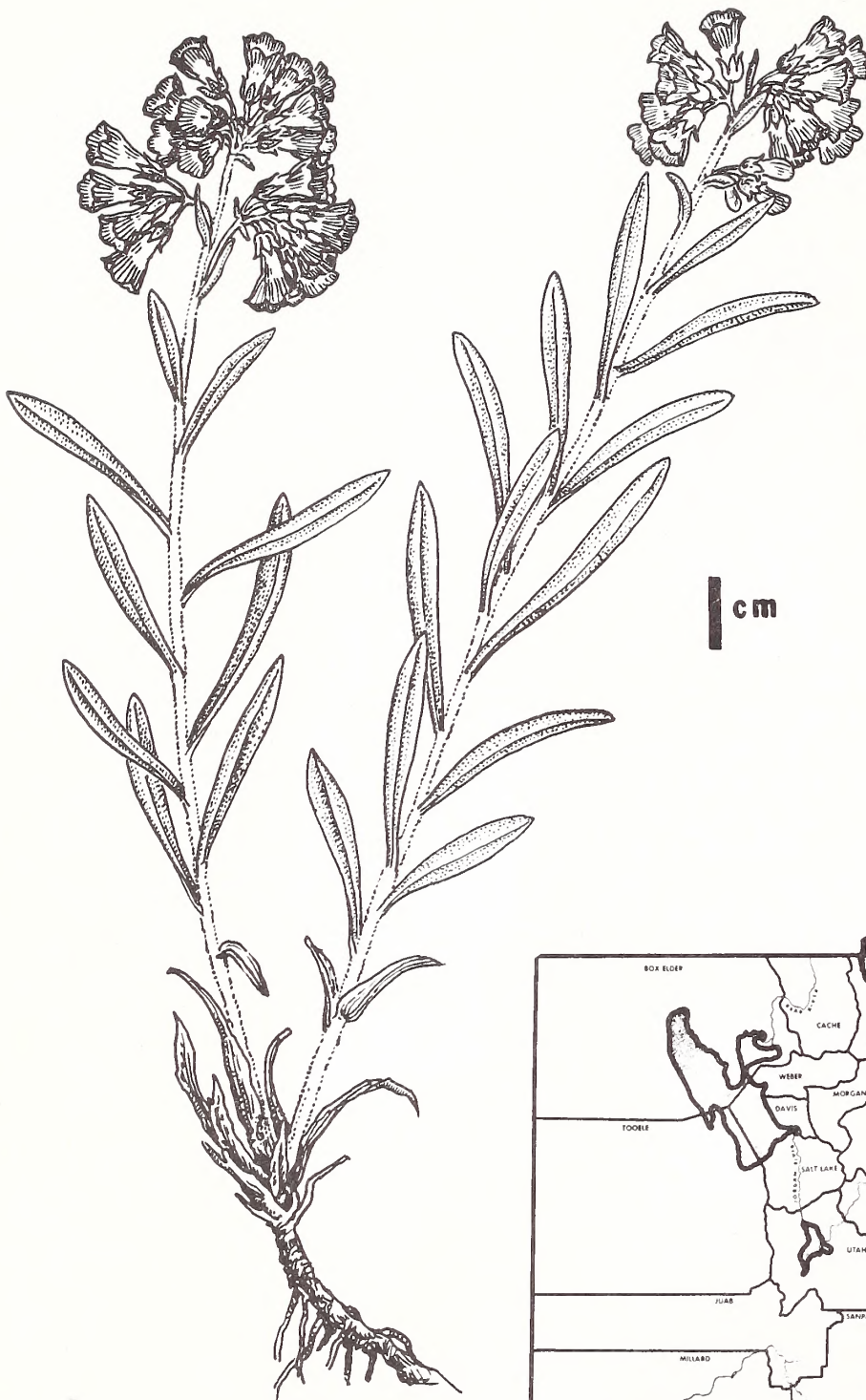
EXISTING OR POTENTIAL THREATS: Some roads, and off-highway and trail use have reduced the known total habitat.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

REMARKS: This variety is one of three within M. viridis in the Uinta Mountains. Differences in ecological role of each taxon, if any, may lead to understanding of management techniques which can ensure perpetuity of the phases of this species.

RECOMMENDATIONS: The total range should be determined and the nature of this taxon studied prior to decisions on land changes in the known range of this entity.

Mertensia viridis var. cana



SCIENTIFIC NAME: Mertensia viridis A. Nels. var. dilatata (A. Nels.)
L. O. Williams

FAMILY: Boraginaceae

CITATION: Ann. Missouri Bot. Gard. 24: 113. 1937.

SYNONYMS: Mertensia coriacea A. Nels. var. dilatata A. Nels. (Bull. Torrey Bot. Club 29: 403. 1902.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Smooth-leaf bluebell

KNOWN DISTRIBUTION: Daggett and Uintah cos., Utah

HABITAT: Mutual Formation, glaciated ground, rocky fell fields; subalpine community

ELEVATION: 10,000 feet (3050 m)

DESCRIPTION: Stems erect, 5-35 cm tall, 1 or several stems from each root-stalk; basal leaves lanceolate to ovate, 2-10 cm long, 1-4 cm broad, glabrous on both sides, petioles longer or shorter than the blade; cauline leaves sessile or nearly so, lanceolate to broadly ovate, 2-7 cm long, glabrous on both sides; inflorescence crowded modified scorpioid cyme; pedicels glabrous, rarely strigose, 1-10 mm long; calyx 2-6 mm long, lobes divided almost to the base, glabrous on the backs, ciliate in fruit; corolla tube 3-9 mm long; corolla limb 4-9 mm long, somewhat expanded, rarely much shorter than the tube; fornications conspicuous, glabrous to densely pubescent; style various, exceeding the anthers and about as long as the corolla to shorter than the tube; nutlets 2-3, rugose.

TAXONOMIC PROBLEMS: M. viridis var. dilatata is similar to M. viridis var. viridis, but the leaves are glabrous on both sides.

EXISTING OR POTENTIAL THREATS: Potential changes in land use threaten this plant.

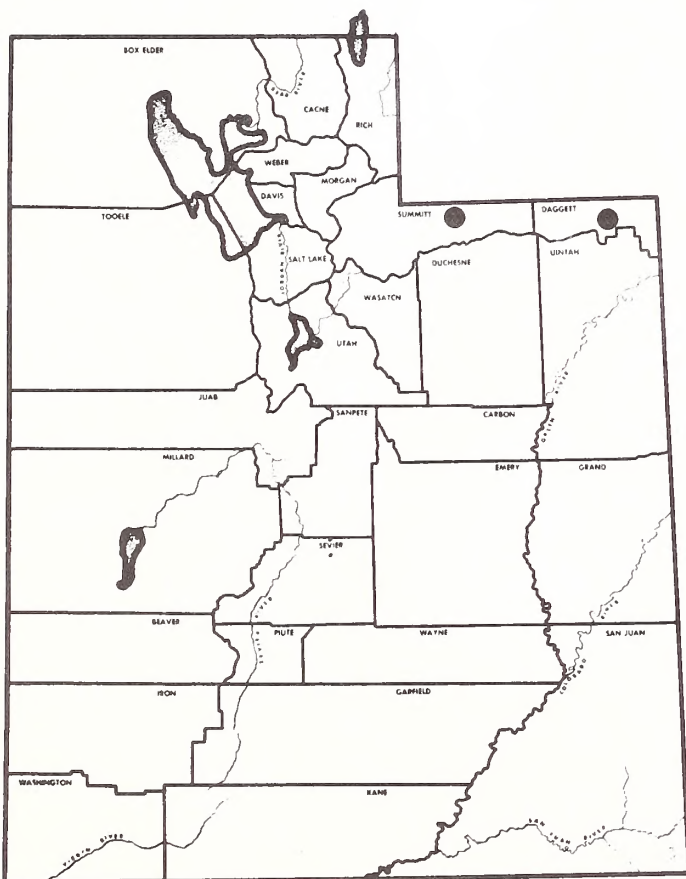
LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

REMARKS: This variety is obscure taxonomically; further work is indicated.

RECOMMENDATIONS: Treat this smooth-leaf bluebell as threatened until more information is available.

Mertensia viridis var. dilatata

cm



SCIENTIFIC NAME: Arabis demissa Greene var. languida Rollins

FAMILY: Brassicaceae

CITATION: Rhodora 43: 388. 1941.

SYNONYMS: Arabis rugocarpa Osterh. (Bull. Torr. Bot. Club 31: 357. 1904.)

Arabis aprica Osterh. (Manual Bot. Rocky Mts. 228. 1909.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Daggett rockcress

KNOWN DISTRIBUTION: Daggett, Emery, and Uintah cos., Utah; Albany and Sweetwater cos., Wyoming

HABITAT: Mancos Shale Formation, limestone outcrops, dry slopes; sagebrush, juniper or spruce, fir, and aspen community

ELEVATION: 7600 to 11,500 feet (2318 to 3508 m)

DESCRIPTION: Plants perennial; stems 1-3 dm tall, solitary or 2-5 from a simple caudex arising from between the basal rosette and a tuft of ascending leaves, subglabrous to hirsute with simple or forked hairs at least below; basal leaves 1.5-3.5 cm long, narrowly to broadly oblanceolate, entire, hirsute marginally and often on surface with simple hairs; cauline leaves sessile and auriculate, about 1 cm long, oblong to lanceolate, hirsute to glabrous; pedicels 3-7 mm long, glabrous, slender, arched downward; sepals 2-3.5 mm long, sparsely pubescent; petals 4.5-6.5 mm long, white to pink, spatulate, erect or ascending; siliques 20-40 mm long, 1.5-2 mm wide, pendulous, nerved to about the middle; styles obsolete; seed uniseriate.

TAXONOMIC PROBLEMS: This variety is only weakly distinguishable from var. demissa in Colorado, and may not deserve taxonomic recognition.

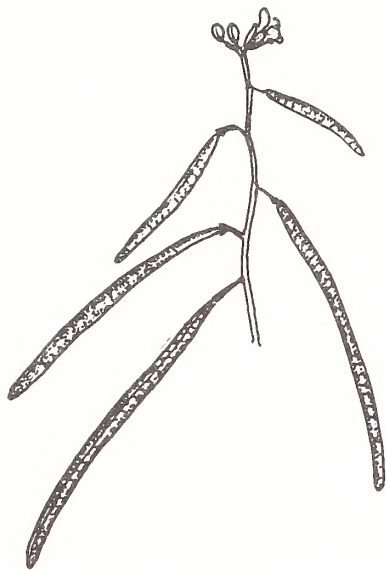
EXISTING OR POTENTIAL THREATS: Potential changes in land use practices and mineral exploration are threats to this plant.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management

REMARKS: This taxon should be considered as threatened until its relationship with var. demissa and var. russeola can be evaluated.

RECOMMENDATIONS: None

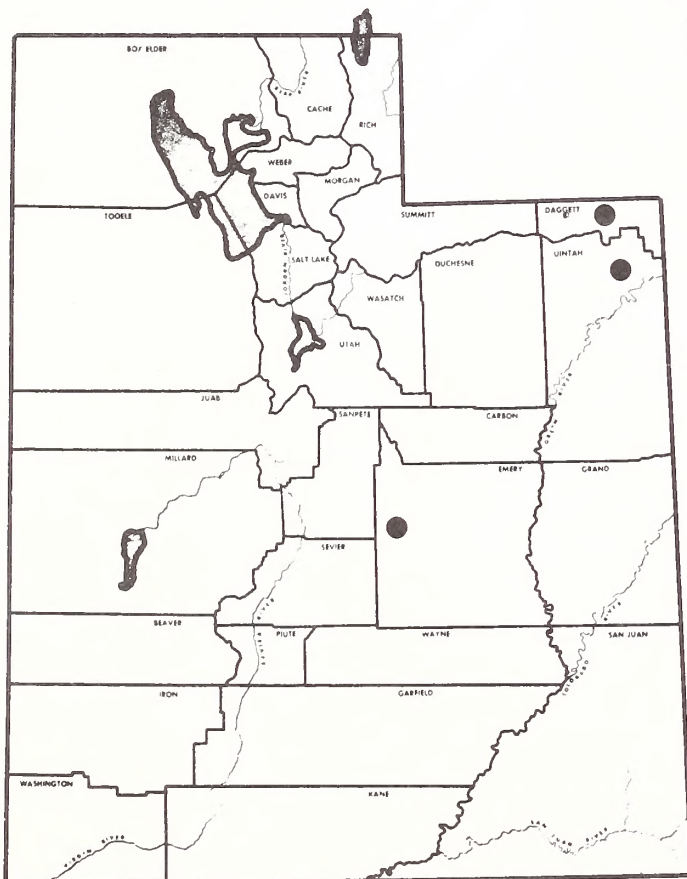
Arabis demissa var. languida



cm



cm



SCIENTIFIC NAME: Arabis demissa Greene var. russeola Rollins

FAMILY: Brassicaceae

CITATION: Rhodora 43: 387. 1941.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Daggett rockcress

KNOWN DISTRIBUTION: Daggett and Uintah cos., Utah

HABITAT: Limestone knolls, gravelly soil; sagebrush and pinyon-juniper community.

ELEVATION: 5000 to 6000 feet (1525 to 1983 m)

DESCRIPTION: Plants perennial; stems 1-3 dm tall, simple or branching from a caudex, these arising from between the basal rosette and a tuft of ascending leaves, subglabrous to hirsute with simple or forked hairs at least below; basal leaves 1.5-3.5 cm long, linear to narrowly oblanceolate, entire, hirsute marginally and often on surface with simple hairs; cauline leaves merely sessile and non-auriculate, 0.5-1 cm long; pedicels slender, glabrous, arched downward; sepals 2-3.5 mm long, sparsely pubescent; petals 4.5-6.5 mm long, white to pink; siliques 20-40 mm long, pendulous, nerved to about the middle; styles obsolete; seed uniseriate.

TAXONOMIC PROBLEMS: This species is similar to A. demissa var. demissa but differs in that the basal leaves are linear.

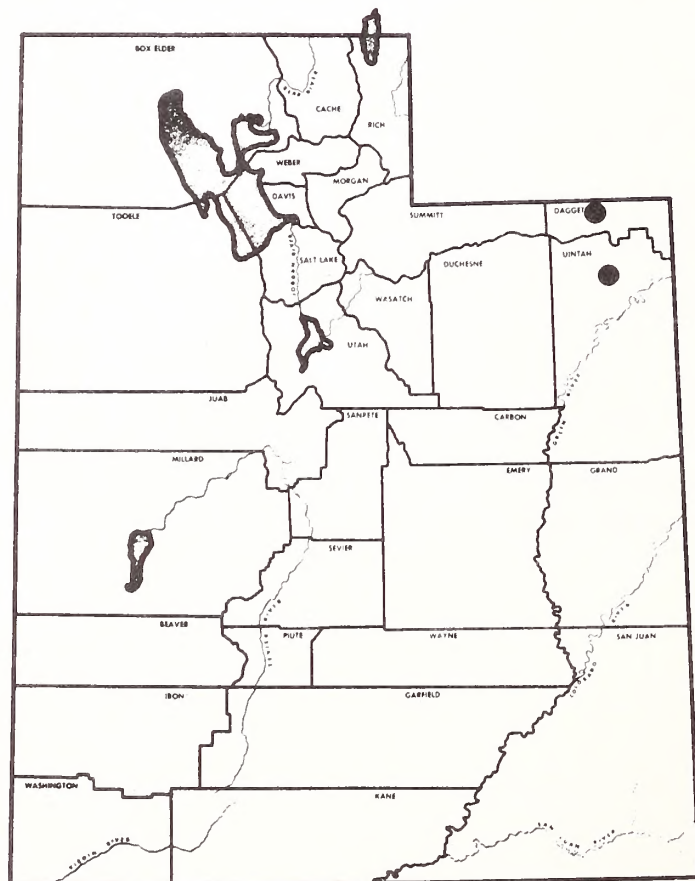
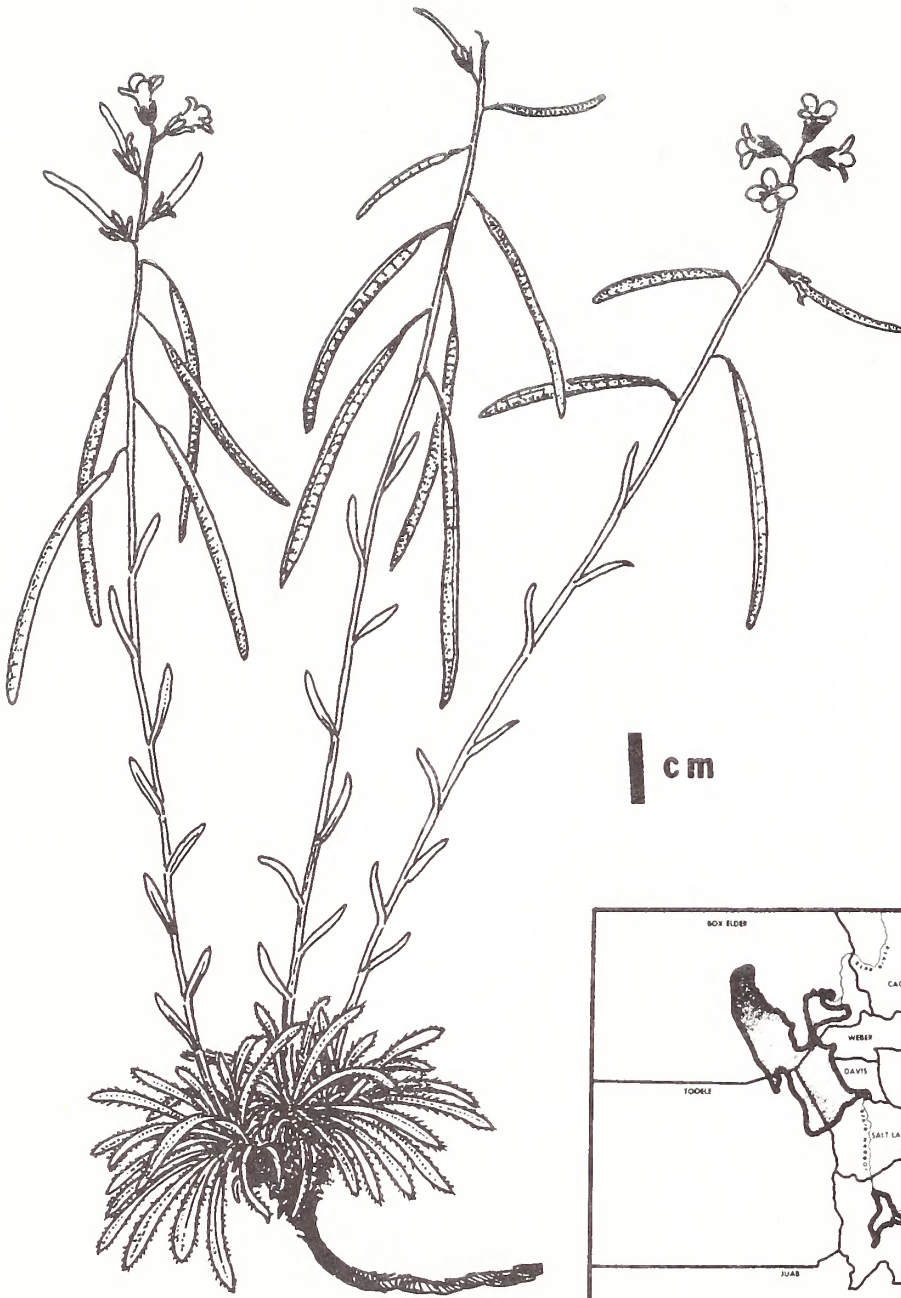
EXISTING OR POTENTIAL THREATS: Off-road vehicles and modifications of the existing right-of-way are threats to this plant.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; U. S. Forest Service

REMARKS: This taxon is obscure and poorly understood even though several decades have passed since it was described.

RECOMMENDATIONS: This species should be regarded as threatened until further studies can be made.

Arabis demissa var. russeola



SCIENTIFIC NAME: Draba asprella Greene
var. zionensis (C. L. Hitchc.) Welsh & Reveal

FAMILY: Brassicaceae

CITATION: Great Basin Naturalist 37: 318. 1978.

SYNONYMS: Draba zionensis C. L. Hitchc. (Univ. Wash. Publ. Biol. 11: 49.
1941.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended
as threatened by S. L. Welsh, 1978.

COMMON NAME: Zion whitlowgrass

KNOWN DISTRIBUTION: Washington Co., Utah

HABITAT: Decomposed sandstone and talus in mountain brush and pine commun-
ities; gravelly soil

ELEVATION: 6000 to 8500 feet (1830 to 2593 m)

DESCRIPTION: Caespitose perennial, caudex branched, scapose; scapes to 20
cm tall, several, rarely with cauline leaf, sparsely hirsute with
simple and branched hairs at the base but glabrous above; leaves 10-
35 mm long, obovate to oblanceolate, grayish with short stalked cruci-
form hairs; racemes simple, elongate with 15-30 flowers; pedicels 3-
15 mm long; sepals 2-3 mm long, sparsely stellate; petals brilliant
orange yellow, fading to yellow, 5-6 mm long; silicles flattened,
lanceolate-elliptic, 7-14 mm long; 1.5-4 mm wide, glabrous or with a
few simple marginal hairs; seeds 12-20.

TAXONOMIC PROBLEMS: D. asprella var. zionensis differs from the type
variety in the freely branching caudex, leaves less pubescent, the
hairs uniformly cruciform, scapes and inflorescence glabrous, yellow-
orange petals and flatter silicle.

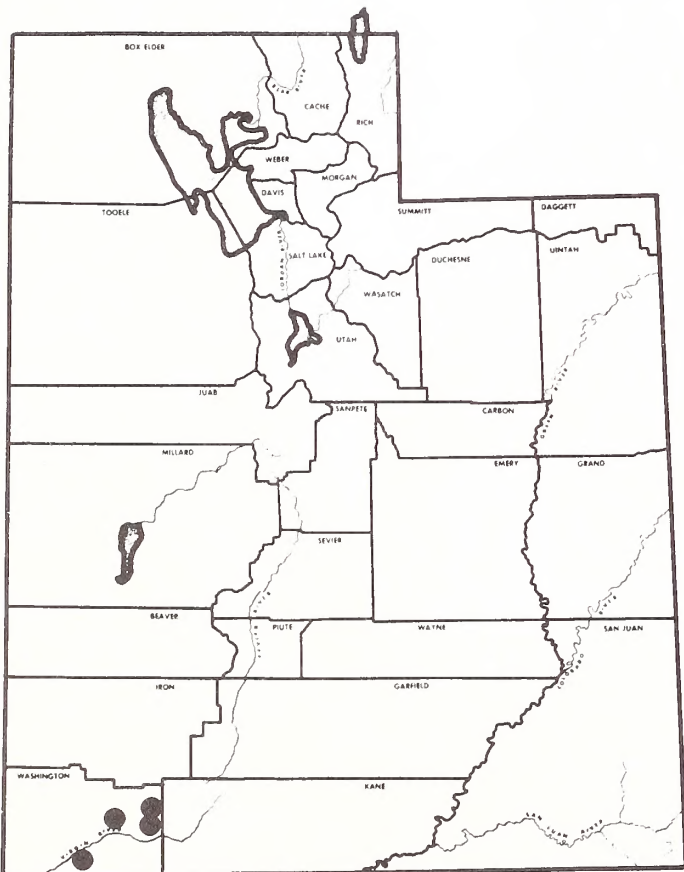
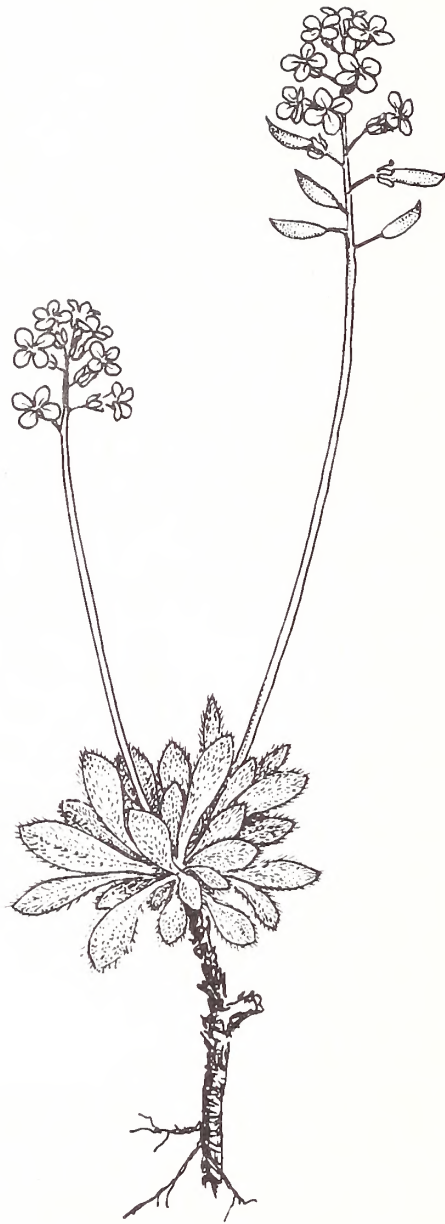
EXISTING OR POTENTIAL THREATS: Land use modifications and industrial
development are threats to this species.

LAND OWNERSHIP/MANAGEMENT: National Park Service; Bureau of Land Management

REMARKS: None

RECOMMENDATIONS: The total range and population characteristics require
investigation.

Draba asprella var. zionensis



SCIENTIFIC NAME: Draba sobolifera Rydb.

FAMILY: Brassicaceae

CITATION: Bull. Torrey Bot. Club 30: 251. 1903.

SYNONYMS: Draba uncinialis Rydb. (Bull. Torr. Bot. Club 30: 251. 1903.)
Draba sobolifera var. uncinialis (Rydb.) O. E. Schulz
(Pflanzenreich, (Heft 4) Fam. 105: 106. 1927.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended
as threatened by S. L. Welsh, 1978.

COMMON NAME: Stolon whitlowgrass

KNOWN DISTRIBUTION: Piute and Garfield cos., Utah

HABITAT: Modified tertiary igneous gravel; timberline, ponderosa pine,
mountain shrub communities; gravelly soil

ELEVATION: 7500 to 12,000 feet (2290 to 3660 m)

DESCRIPTION: Perennial, caespitose, caudex branched, scapose, scapes 0.1-0.6
cm tall, pubescent with intermixed stellate, branched and simple hairs;
leaves 0.8-2 cm long, obovate to oblanceolate, pubescent with stalked
stellate hairs and usually ciliate with simple hairs at base; racemes
5-20 flowered, compact to elongating in fruit; pedicels 3-8 mm long,
stellate or with branched hairs; sepals 1.8-2.5 mm long, petals 4-5 mm
long, yellow; silicles 3-8 mm long, ovate to elliptic, pubescent to
glabrous; seeds 4-12.

TAXONOMIC PROBLEMS: D. sobolifera is related to D. alpina and D. venusta
but differs from the former in the more elongated stems, and shorter
pod, from the latter in the longer leaves and finer and sparser
pubescence.

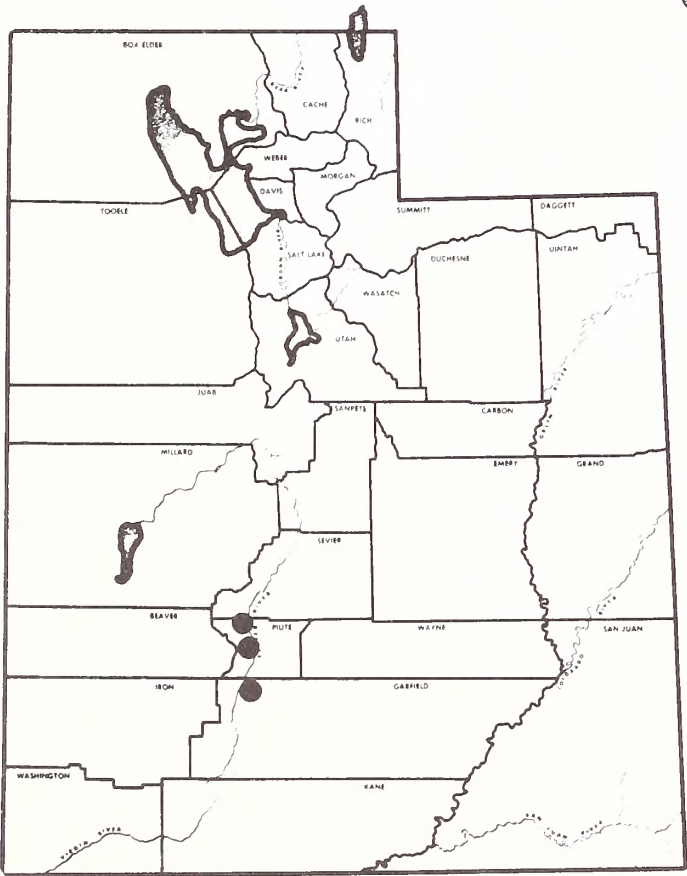
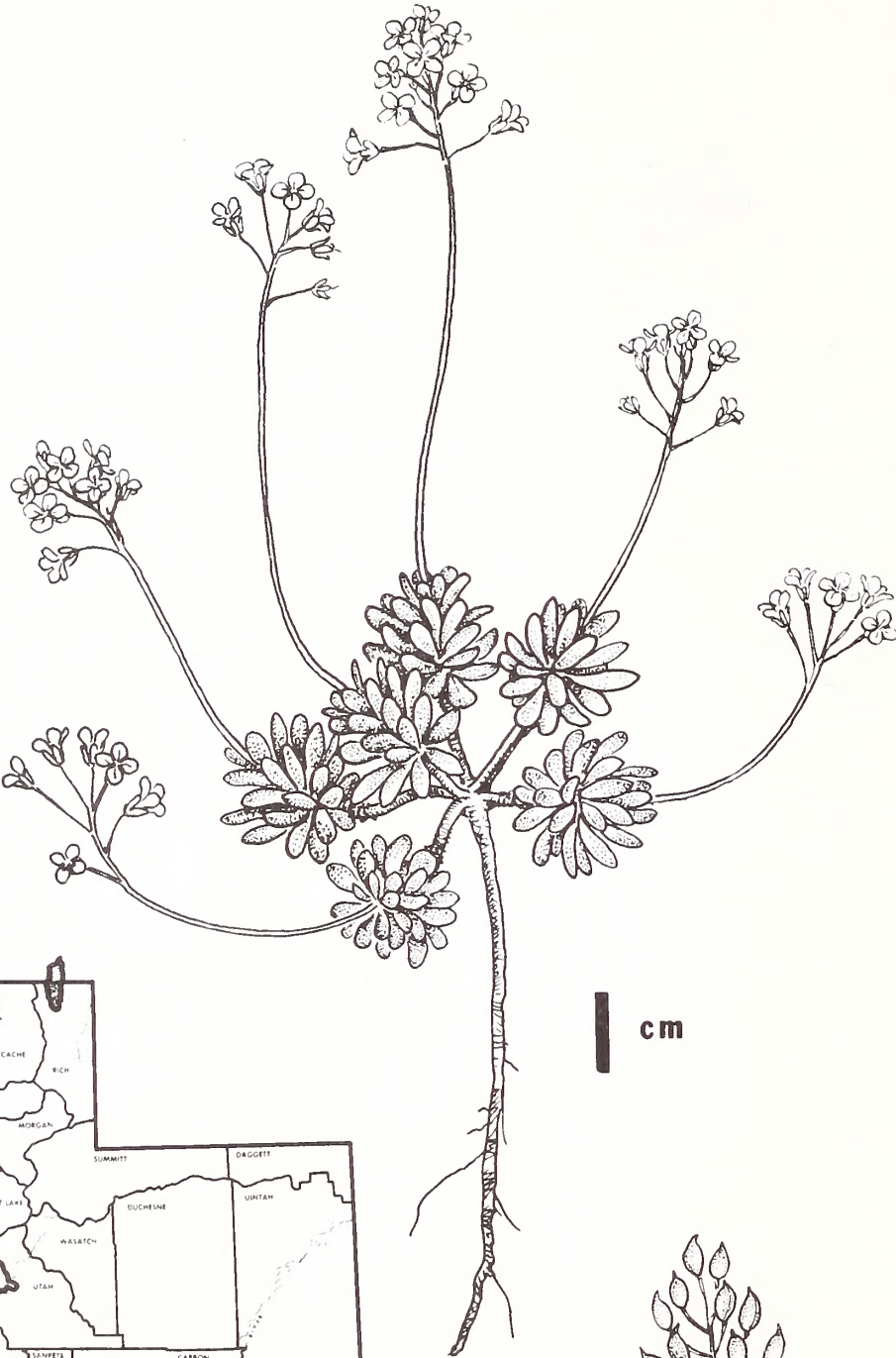
EXISTING OR POTENTIAL THREATS: Mineral exploration, recreation expansion
and changes in land use are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service; private

REMARKS: This plant is locally common but highly restricted.

RECOMMENDATIONS: The plants should be regarded as threatened.

Draba sobolifera



SCIENTIFIC NAME: Draba subalpina Goodman and Hitchc.

FAMILY: Brassicaceae

CITATION: Ann. Missouri Bot. Gard. 19: 77. 1932.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975.
Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Subalpine whitlowgrass

KNOWN DISTRIBUTION: Iron, Garfield, Kane and Millard cos., Utah

HABITAT: Pink Limestone Member of the Wasatch Formation, gravel or clay loam; spruce, fir, Douglas fir or bristle cone pine woodlands

ELEVATION: 8000 to 11,315 feet (2140 to 3447 m)

DESCRIPTION: Perennial, caespitose, caudex simple or branched, with marcescent leaves, scapose; scapes to 1.2 dm tall, rarely with cauline leaf, glabrous or pubescent with simple or forked hairs, at least near the base; leaves 0.3-1.8 cm long, oblong to spatulate, surfaces glabrous or sparingly hirsute, ciliate with simple or forked hairs; racemes few to many flowered, somewhat elongated in fruit; pedicels 2-10 mm long; flowers white, 4-5 mm long; silicles 3-8 mm long, ovate to elliptic, glabrous; seeds 6-12.

TAXONOMIC PROBLEMS: D. subalpina is related to D. oreibata but differs by its larger leaves and ovate silicles.

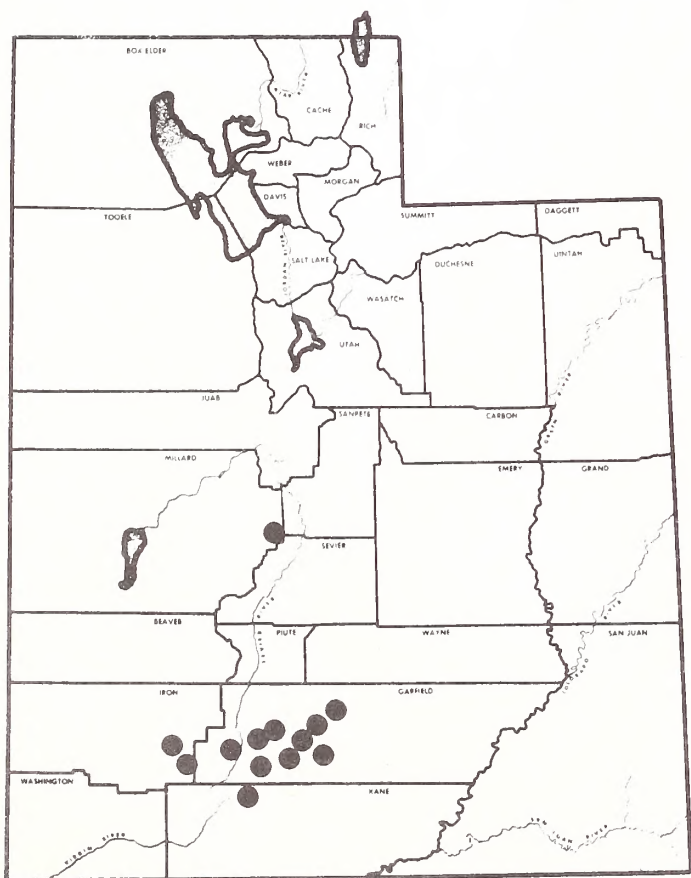
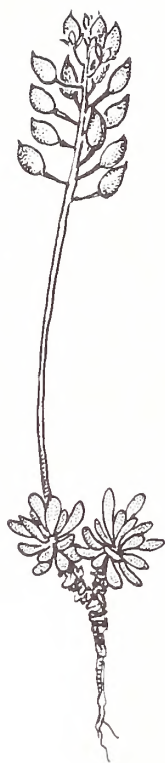
EXISTING OR POTENTIAL THREATS: Limestone exploitation, potential railroad construction and mineral exploration are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: National Park Service; U. S. Forest Service; Bureau of Land Management; private

REMARKS: The species is apparently confined to limestone.

RECOMMENDATIONS: Although rather widely distributed, this plant occurs commonly with one or more other plants of narrow distribution. The plant should be regarded as threatened.

Draba subalpina



SCIENTIFIC NAME: Glaucocarpum suffrutescens (Rollins) Rollins

FAMILY: Brassicaceae

CITATION: Madroño 4: 233. 1938.

SYNONYMS: Thelypodium suffrutescens Rollins. (Ann. Carnegie Mus. 26: 244. 1937.)

STATUS: Reviewed as endangered, Federal Register, July 1, 1975. Proposed as endangered, Federal Register, June 16, 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Rollins thelypody

KNOWN DISTRIBUTION: Uintah Co., Utah

HABITAT: Green River Shale Formation, sandstone lens; scattered pinyon-juniper community in mixed desert shrub.

ELEVATION: 5400 to 6000 feet (1647 to 1830 m)

DESCRIPTION: Plant a caespitose perennial, branching with a strong deep root; leaves entire or rarely denticulate, petiolate or sessile, elliptical to broadly oblanceolate; inflorescence narrow, strict but somewhat lax; flowers and young sepals greenish yellow; siliques 2-3 cm long, 2-3 mm broad, slightly flattened parallel to the septum, sessile or short stipitate; style evident in a stout beak.

TAXONOMIC PROBLEMS: None

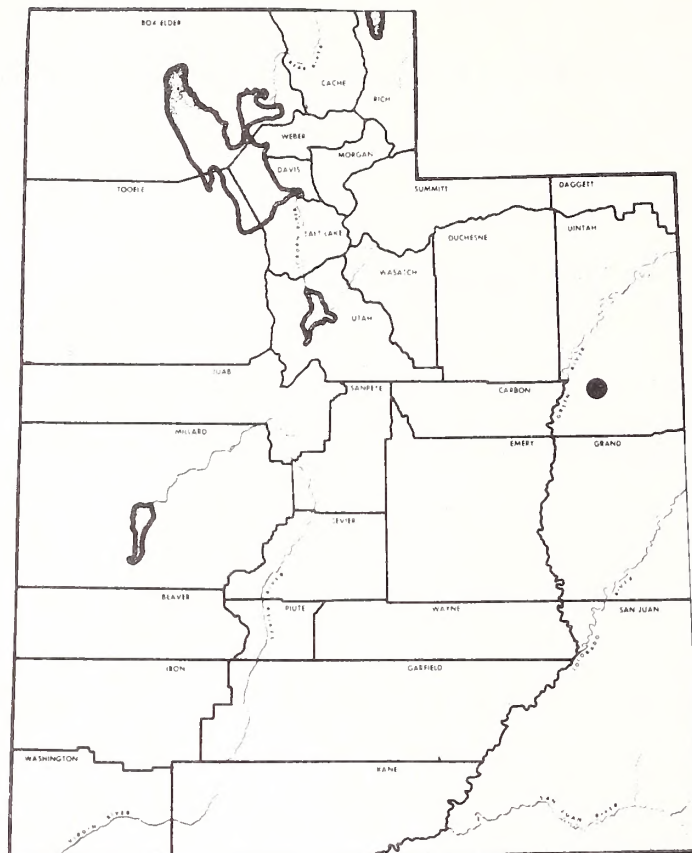
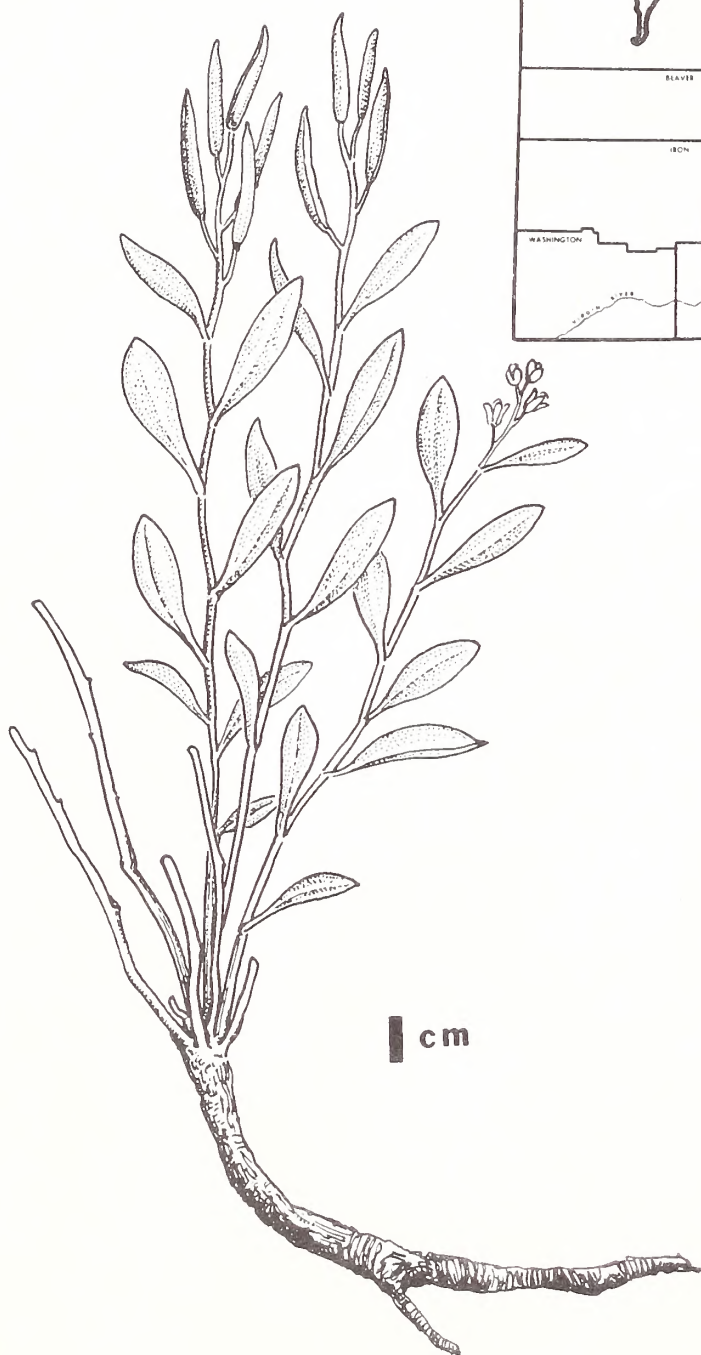
EXISTING OR POTENTIAL THREATS: This plant is threatened by probable oil shale development and other mineral developments.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management, Utah State, Naval Oil Reserve

REMARKS: Thought to be possibly extinct, G. suffrutescens was recently discovered in an area marked with mineral claims.

RECOMMENDATIONS: This plant should be considered endangered.

Glaucocarpum suffrutescens



SCIENTIFIC NAME: Lepidium barnebyanum Reveal

FAMILY: Brassicaceae

CITATION: Great Basin Naturalist 27: 178. 1967.

SYNONYMS: Lepidium montanum Nutt. ssp. demissum C. L. Hitchc. (Madroño 10: 157. 1950.)

COMMON NAME: Barneby peppergrass

KNOWN DISTRIBUTION: Duchesne Co., Utah

STATUS: Reviewed as endangered, Federal Register, 1 July 1978. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

HABITAT: Green River Shale Formation, top of a ridge, gravelly soil; mixed desert shrub and pinyon-juniper community

ELEVATION: 6200 feet (1891 m)

DESCRIPTION: Plants perennial, 5-15 cm high and up to 20 cm across, often forming raised humps; taproots deep, woody; plants appear glabrous and glaucous; leaves basal and cauline, basal leaves linear to linear-lanceolate, cauline leaves similar to basal ones but more reduced; sepals green, with hyaline margins, deciduous shortly after anthesis; petals white to cream colored, limbs rotund narrowing to slender claws; silicles lanceolate to elliptic, glabrous, not winged; styles 0.2-0.5 mm long.

TAXONOMIC PROBLEMS: L. barnebyanum is distinguished from L. montanum by its sparsely pubescent stems, leaves, and pedicels, shorter linear to linear-lanceolate leaves, pulvinate growth habit, and lanceolate-elliptic silicle.

EXISTING OR POTENTIAL THREATS: Industrial development or exploration and mineral exploitation could cause reduction of this restricted population.

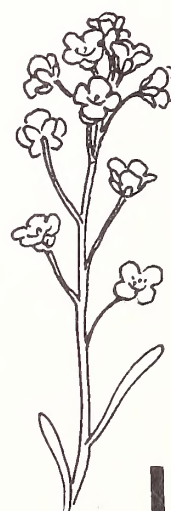
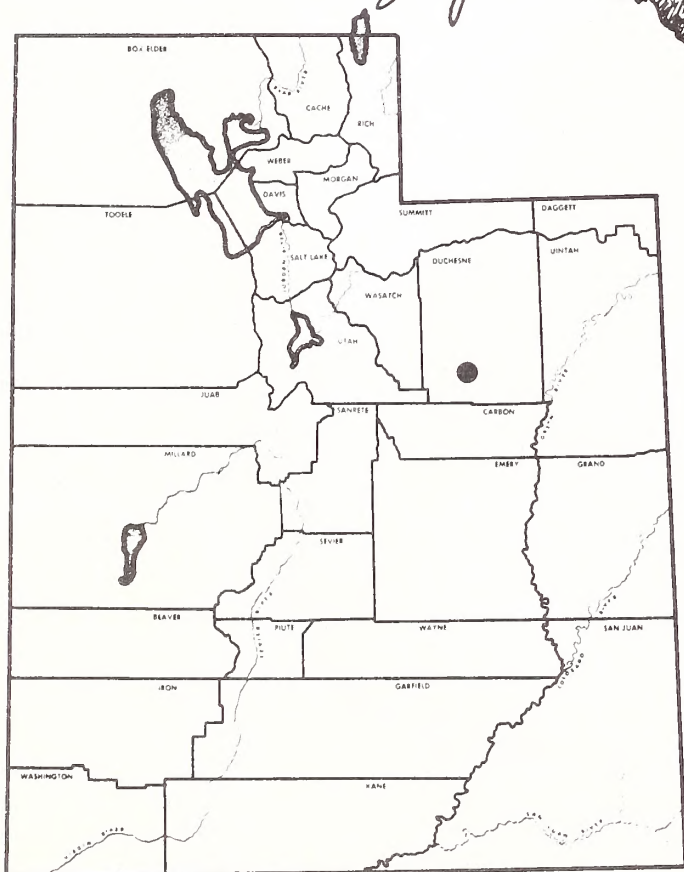
LAND OWNERSHIP/MANAGEMENT: United States Bureau of Indian Affairs, Ouray and Uintah Indian Reservations; U. S. Forest Service

REMARKS: The surrounding region should be explored thoroughly for additional populations.

RECOMMENDATIONS: This species should be regarded as endangered.

Lepidium barnebyanum

cm



cm

SCIENTIFIC NAME: Lesquerella garrettii Payson

FAMILY: Brassicaceae

CITATION: Ann. Missouri Bot. Gard. 8: 213. 1921.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Garrett bladderpod

KNOWN DISTRIBUTION: Salt Lake, Utah, and Wasatch cos., Utah

HABITAT: In clefts of rocks on mountain sides; subalpine meadow, mountain shrub and pine communities

ELEVATION: 9700 to 11,330 feet (2959 to 3447 m)

DESCRIPTION: Perennial, stellate-pubescent throughout, stellae small, rays numerous; stems very slender, erect or decumbent, unbranched, 3-5 cm long, terminal bud apparently developing a fertile stem; radical leaves 1-3 cm long, obtuse to spatulate or narrowly elliptical, gradually narrowed to very slender petiole; raceme 3-7 flowered; flowers yellow, 6-7 mm long; pedicels 3-6 mm long, sometimes sigmoid; pods erect or ascending, densely stellate-pubescent, rays of stellae not appressed, subsessile or stipitate, subglobose, 3-4 mm long, stipe black, septum nerved; seeds 4.

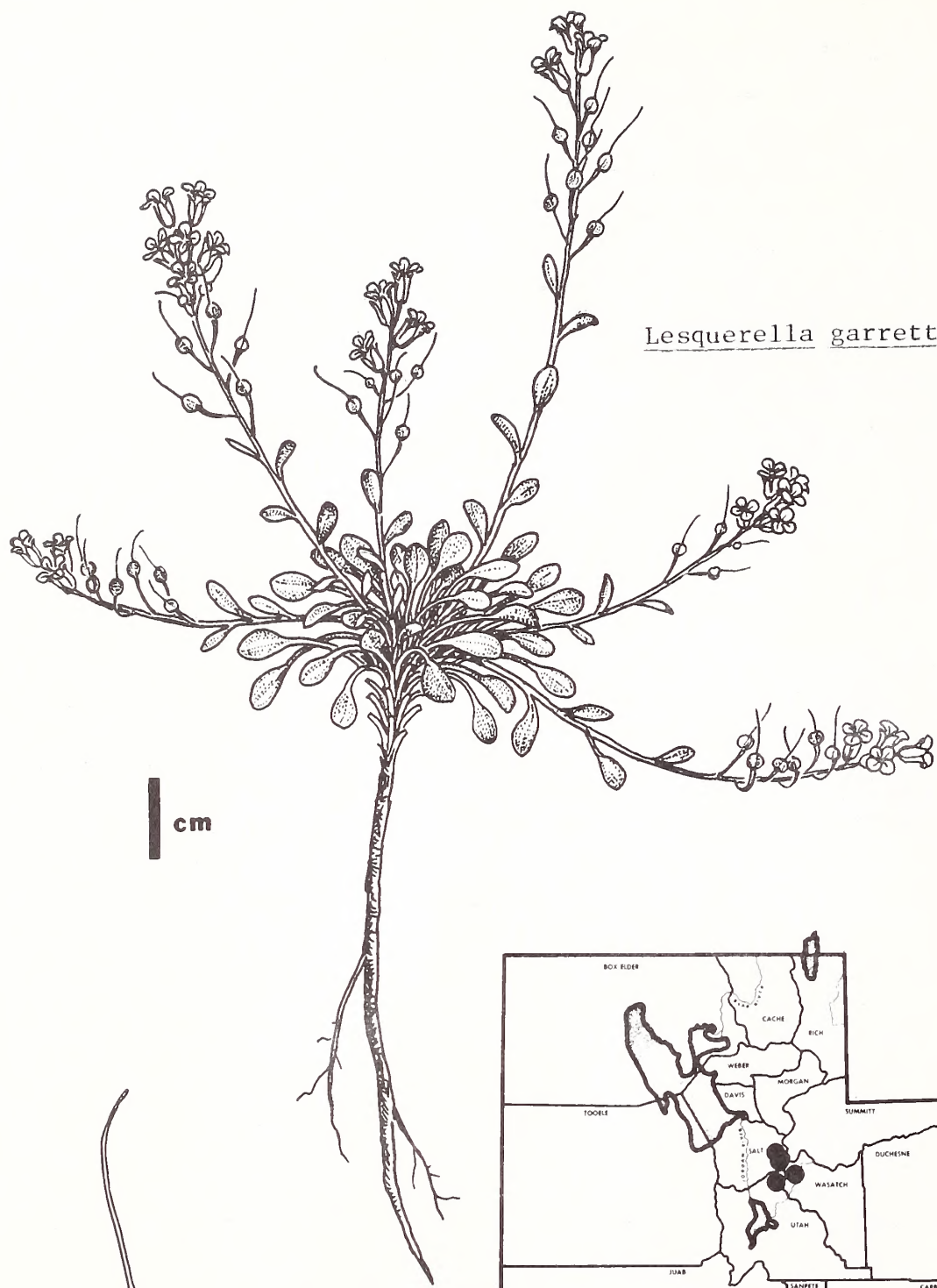
TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Recreational expansion and urban expansion are potential threats to this species.

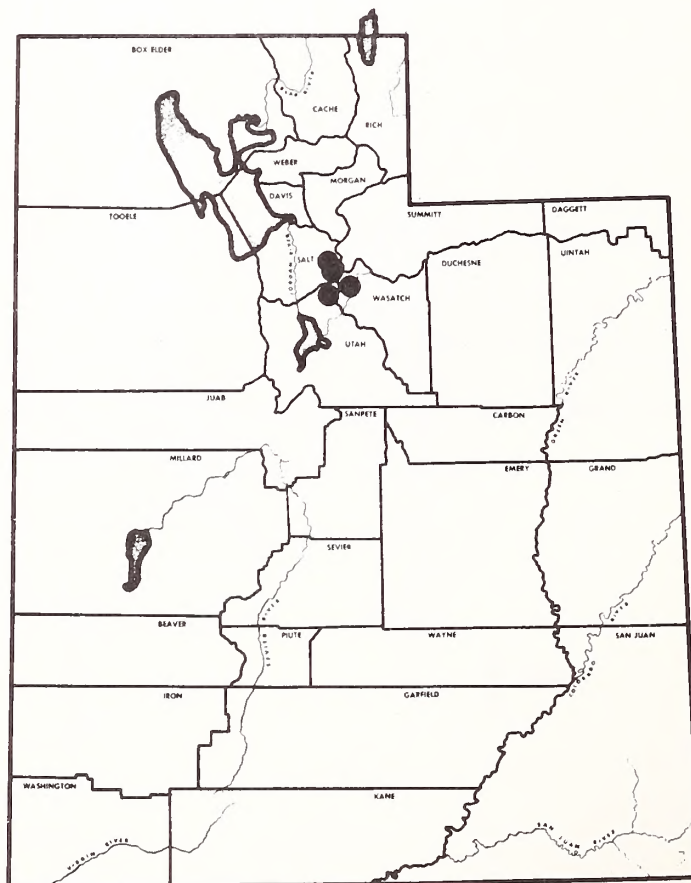
LAND OWNERSHIP/MANAGEMENT: U.S. Forest Service; private

REMARKS: The Garrett bladderpod is relatively obscure, even years following its discovery and naming.

RECOMMENDATIONS: This bladderpod should be regarded as threatened.



Lesquerella garrettii



SCIENTIFIC NAME: Lesquerella rubicundula Rollins

FAMILY: Brassicaceae

CITATION: Contr. Dudley Herb. 3: 178. 1941.

SYNONYMS: Lesquerella hitchcockii ssp. rubicundula (Rollins) Maguire & Holmgren (Madroño 11: 175. 1951.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Bryce bladderpod

KNOWN DISTRIBUTION: Garfield and Iron cos., Utah

HABITAT: White and Pink Limestone Members of the Wasatch Formation; limestone gravel, dry slopes, red chip talus; mixed conifer woodland

ELEVATION: 7300 to 10,000 feet (2227 to 3050 m)

DESCRIPTION: Perennial, loosely caespitose, not matted, caudex simple or few to several branches, branches with marcescent leaf bases, herbage with stellate pubescences; stems 0.1-0.5 dm tall, erect, simple; leaves mainly basal, 0.3-1.2 cm long, not differentiated into blade and petiole; pedicels 1-6 mm long, ascending; sepals 3.2-4.5 mm long; petals 4.5-7 mm long, yellow, spatulate; silicles (excluding style) 3-5 mm long, sessile to substipitate, ovoid, glabrous; style 2.8-3.5 mm long; seeds 2-4 per locule.

TAXONOMIC PROBLEMS: Related to L. tumulosa, L. rubicundula differs in its fewer stems, smaller clumps, and less dense habit.

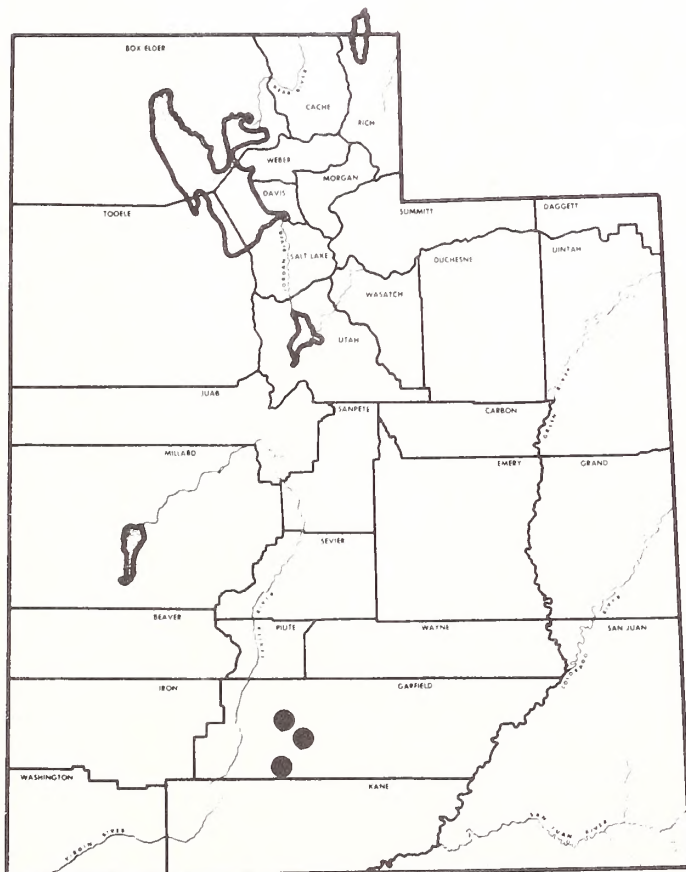
EXISTING OR POTENTIAL THREATS: Limestone exploitation and industrial development pose potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: National Park Service; U.S. Forest Service

REMARKS: The Bryce bladderpod occurs on limestone with several other unique species of restricted distribution.

RECOMMENDATIONS: This species should be regarded as threatened.

Lesquerella rubicundula



SCIENTIFIC NAME: Lesquerella tumulosa (Barneby) Reveal

FAMILY: Brassicaceae

CITATION: Great Basin Naturalist 30: 97. 1970.

SYNONYMS: Lesquerella hitchcockii Munz. ssp. tumulosa Barneby. (Leaflet. W. Bot. 10: 313. 1966.)

STATUS: Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Kodachrome twinpod

KNOWN DISTRIBUTION: Kane Co., Utah

HABITAT: Winsor Member of the Carmel Formation, white bare shale knolls; among scattered juniper in a Bouteloua grassland

ELEVATION: 5500 feet (1678 m)

DESCRIPTION: Plant perennial, pulvinate caespitose, densely matted; caudex many branched, branches clothed with numerous marcescent leaves and leaf bases; herbage pubescent with stellate hairs; stems erect, simple, 0.1-0.4 cm tall, the leaves mainly basal, 0.2-1 cm long, blade and petiole not differentiated; pedicels 2-5 mm long, straight or S-shaped, spreading to ascending; sepals 2.8-4 mm long; petals 5-7 mm long, yellow, spatulate; silicles 2.7-3.8 mm long, substipitate, ovoid, glabrous, style evident.

TAXONOMIC PROBLEMS: This plant was included with L. rubicundula by Rollins and Shaw (1973) but is distinct morphologically, spatially, and substrate-wise.

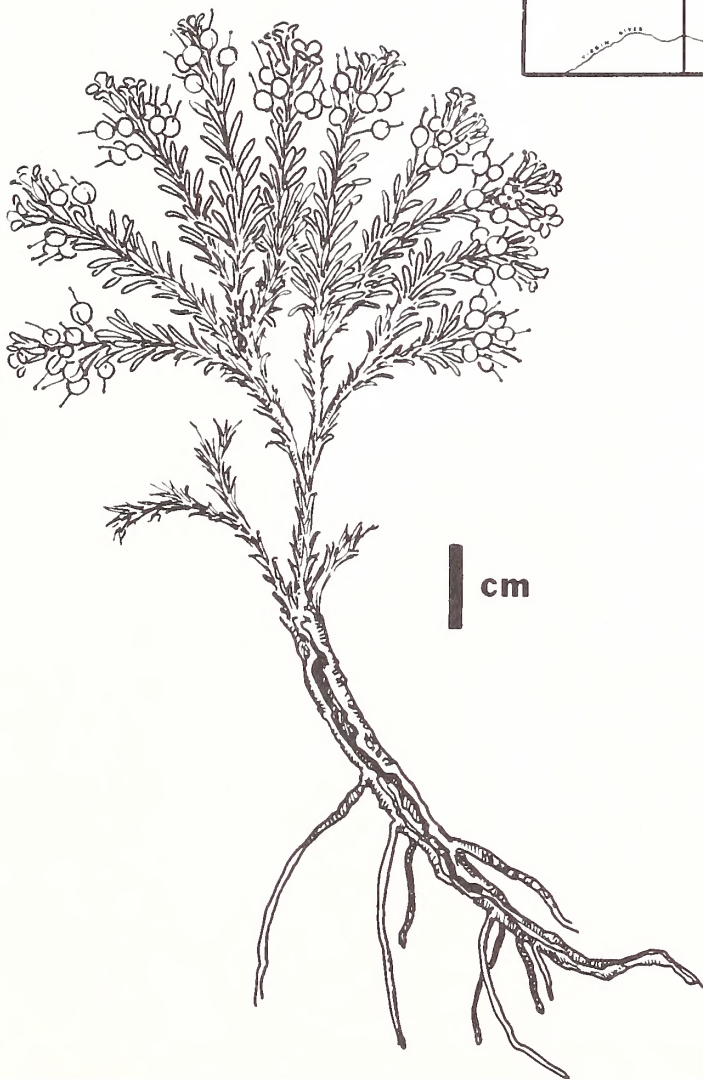
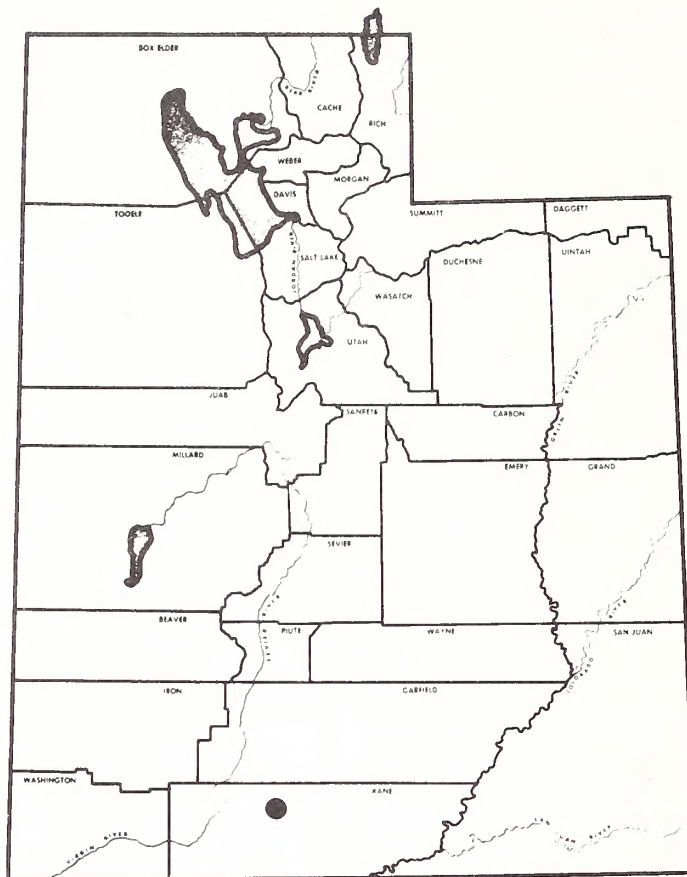
EXISTING OR POTENTIAL THREATS: Road building materials are systematically removed from white shale knolls in the type locality of this plant.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management

REMARKS: The Kodachrome twinpod occupies the shale knolls and areas immediately surrounding, where it grows with the narrowly restricted Lepidium montanum var. stellae.

RECOMMENDATIONS: The shale knolls which form the substrate should be protected from destruction for road materials and other purposes. The plants should be regarded as endangered.

Lesquerella tumulosa



SCIENTIFIC NAME: Parrya rydbergii Botsch.

FAMILY: Brassicaceae

CITATION: Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 17: 178. 1955.

SYNONYMS: Parrya platycarpa Rydb. (Bull. Torrey Bot. Club 39: 326. 1912. Not Hook. f. and Thomas.)

Parrya macrocarpa Wats. (Bot. King Exp. 14. 1871. Not R. Br.)

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Rydberg parrya

KNOWN DISTRIBUTION: Daggett, Duchesne, Summit, and Uintah cos., Utah

HABITAT: Talus slopes; krummholz communities and alpine tundra

ELEVATION: 10,500 to 12,000 feet (3200 to 3720 m)

DESCRIPTION: Plants rosulate, low perennials, caudex with marcescent leaf bases; stems scapose, 0.7-1.2 dm tall; herbage stipitate glandular; leaves 3-10 cm long, 0.6-2 cm wide, oblanceolate to elliptic; flowers racemose, 3-7 (10); pedicels 4-20 mm long, stout, steeply ascending; sepals 7.2-9.3 mm long; petals 16-23 mm long, pink to lavender, cuneate-spatulate, emarginate; siliques 25-47 mm long, 3-3.5 mm wide, straight or curved, midnerve prominent, glabrous or stipitate glandular, stigma deeply bilobed; seeds 1-4 per locule.

TAXONOMIC PROBLEMS: None

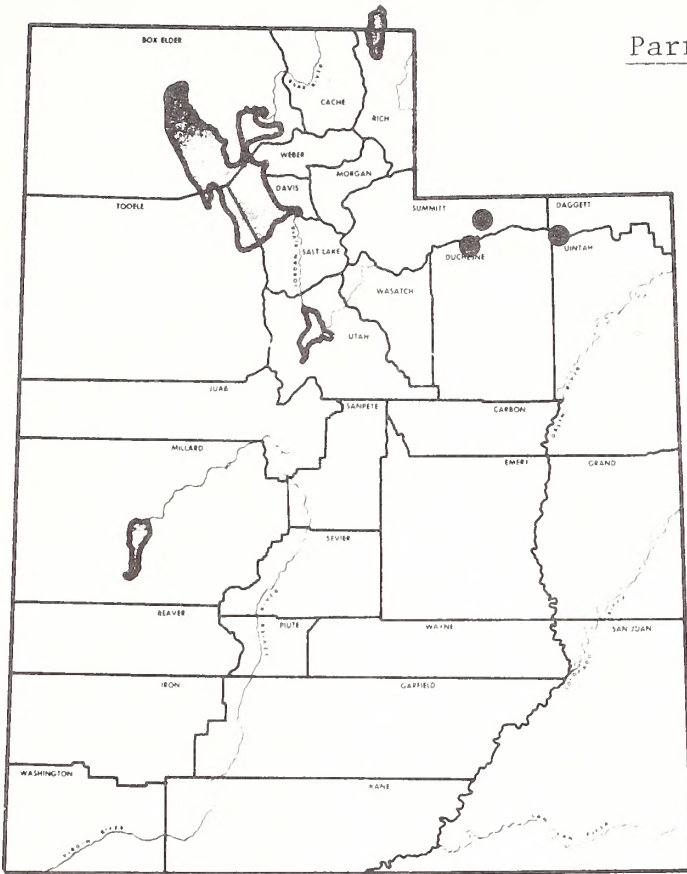
EXISTING OR POTENTIAL THREATS: Land use modification and resource exploitation are threats to this species.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

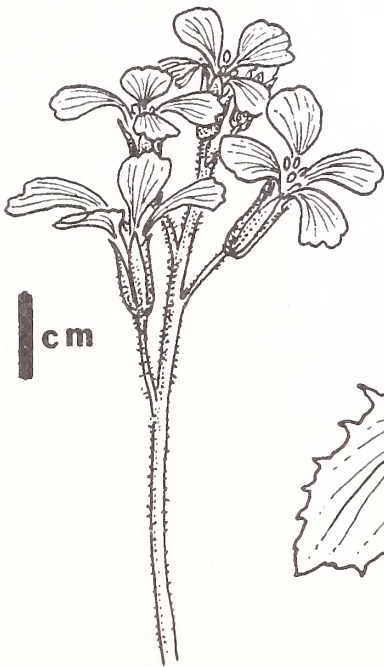
REMARKS: This plant has attractive bright pink flowers, larger than any other Utah parrya. The species is restricted to the Uinta Mountains.

RECOMMENDATIONS: The Rydberg parrya should be regarded as threatened until definitive information on range, habitat, and population size becomes available

Parrya rydbergii



cm



SCIENTIFIC NAME: Thelypodopsis argillacea Welsh & Atwood

FAMILY: Brassicaceae

CITATION: Great Basin Naturalist 37: 95. 1977.

SYNONYMS: None

STATUS: Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Clay thelypody

KNOWN DISTRIBUTION: Uintah Co., Utah.

HABITAT: Green River Shale Formation; desert shrubland, scattered pinyon-juniper community.

ELEVATION: 5000 feet (1525 m)

DESCRIPTION: Plant perennial, glabrous, glaucous; stems 1.3-3 dm tall, simple or branched above, arising from a subligneous caudex; leaves sessile, all cauline, not auriculate, linear, 0.9-3 cm long, 0.8-2 mm wide, somewhat fleshy, entire, acute to rounded; racemes (5) 8-22 flowered; pedicels 7-13 mm long, ascending; sepals 4.2-6.5 mm long, purple, margins hyaline; petals 7.8-10.9 mm long, white to lilac with conspicuous purplish veins; siliques 18-25 mm long, subsessile, terete, ascending to erect.

TAXONOMIC PROBLEMS: Related to T. linearifolia (Gray) Al-Shebaz but the plant is distinguished by shorter leaves and smaller flowers.

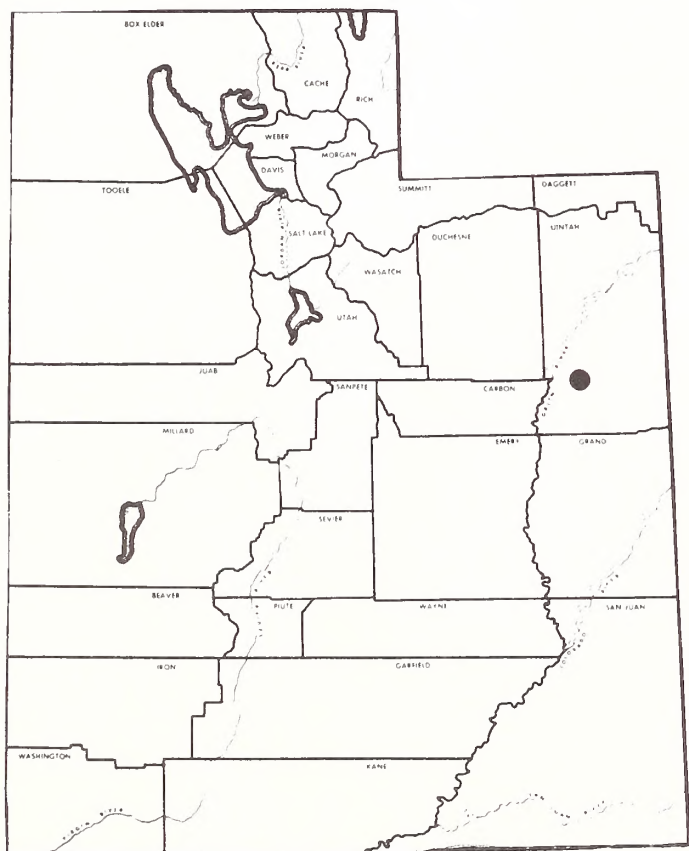
EXISTING OR POTENTIAL THREATS: Oil and gas exploration may cause extinction of the only known population.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management, U. S. Forest Service

REMARKS: A single population of a few dozen individuals is known. The region is marked by prospecting roads and claim markers.

RECOMMENDATIONS: The site should be set aside as a natural area.

Thelypodopsis argillacea



SCIENTIFIC NAME: Thelypodium sagittatum (Nutt.) Endl. var. ovalifolium
(Rydb.) Welsh and Reveal

FAMILY: Brassicaceae

CITATION: Great Basin Naturalist 35: 343. 1975.

SYNONYMS: Thelypodium ovalifolium Rydb. (Bull. Torrey Bot. Club 30:
253. 1903.)

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Panguitch Lake thelypody

KNOWN DISTRIBUTION: Garfield and Iron cos., Utah and White Pine Co.,
Nevada

HABITAT: Clay soils

ELEVATION: 7800 feet (2379 m)

DESCRIPTION: Biennial or short-lived perennial, stems 2-10 dm tall, rarely more, simple or more, usually branched, glabrous or hirsute with simple hairs below; basal leaves oblanceolate, ovate or oblong, 2-25 cm long, entire; cauline leaves 7-10 cm long, ovate to lanceolate, entire, glabrous or puberulent, auriculate; pedicels 2.5-9 mm long; sepals 2.5-10 mm long, green to purplish, glabrous; petals 5-15 mm long, white to lavender or purple; siliques 10-65 mm long, 0.5-1.2 mm wide, stipitate; stipe 0.3-1 mm long.

TAXONOMIC PROBLEMS: None

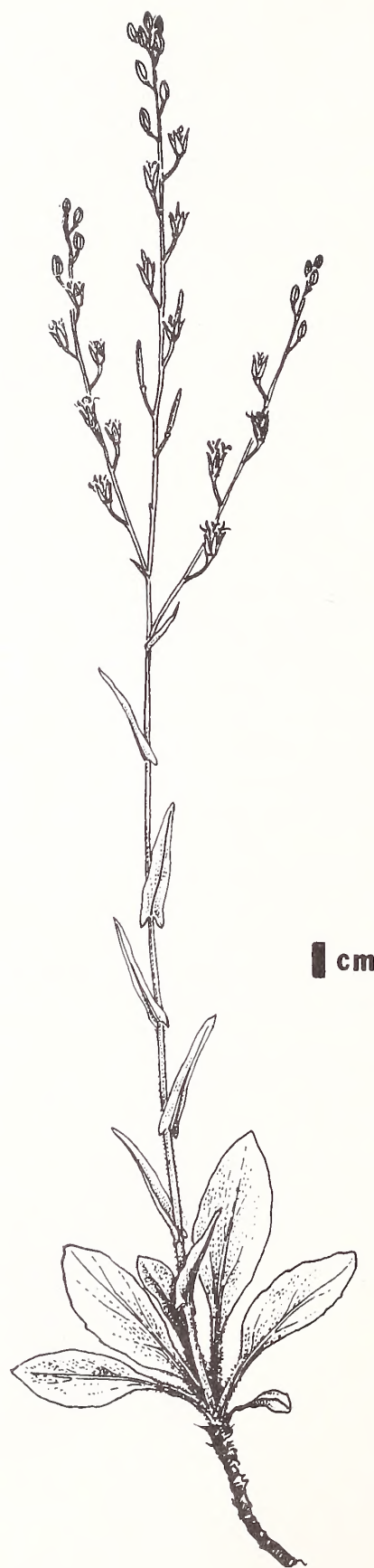
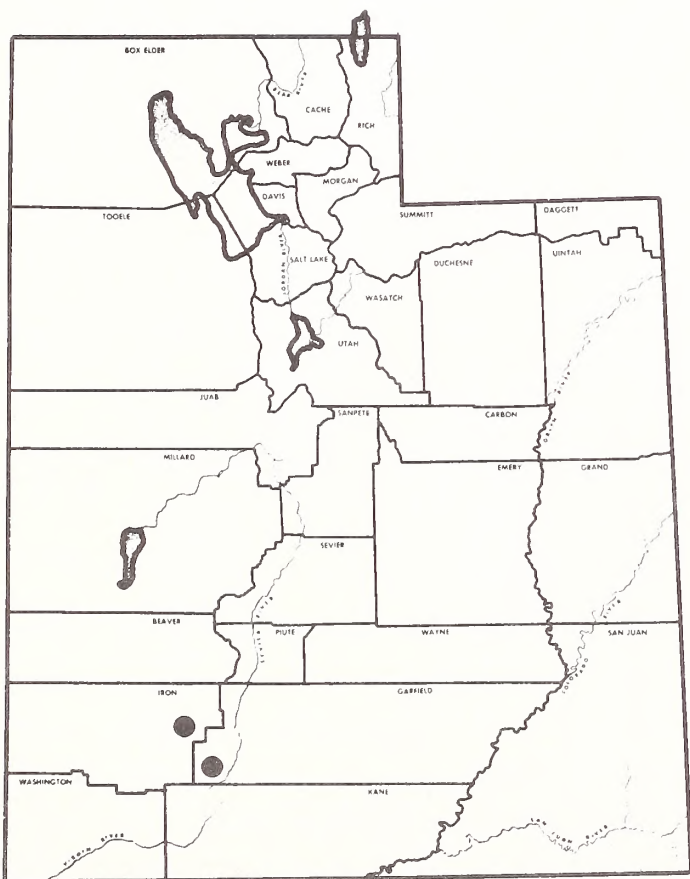
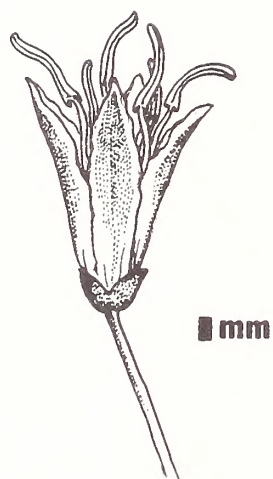
EXISTING OR POTENTIAL THREATS: Urban and rural expansion, mineral exploitation, and industrial expansion (generating stations, pipelines, railroads) are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; U. S. Forest Service; Utah State

REMARKS: This obscure plant is sufficiently rare that any reduction in the population numbers could constitute a threat to its existence.

RECOMMENDATIONS: This rare thelypody should be considered as threatened.

Thelypodium sagittatum



SCIENTIFIC NAME: Echinocereus engelmannii (Parry) Lemaire
var. purpureus L. Benson

FAMILY: Cactaceae

CITATION: Cact. Succ. J. (Los Angeles) 41: 126. 1969.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Purple hedgehog cactus

KNOWN DISTRIBUTION: Washington Co., Utah

HABITAT: Navajo Sandstone Formation, sandy clay soil; desert shrub community

ELEVATION: 2900 feet (835 m)

DESCRIPTION: Plants perennial; stems branched at the base, ovate-cylindrical, 1.5-2 dm high, about 5 cm in diameter, tubercles not prominent; areoles circular, spines numerous but not obscuring the stem; central spines 4-6, 2-2.5 cm long, 0.7-0.8 mm wide, purplish, straight to slightly curved, lower one 2.5-3 cm long, 1 mm wide, declined and flattened, others may be also, straight, curved or twisted; radial spines variable 6-12 per areole, spreading close to the stem, all spines are elliptic in cross section; flower 5-62 cm wide, petaloid parts purple, magenta or lavender; fruit green turning to red at maturity.

TAXONOMIC PROBLEMS: It is unclear how this entity differs from E. engelmannii var. engelmannii as interpreted strictly.

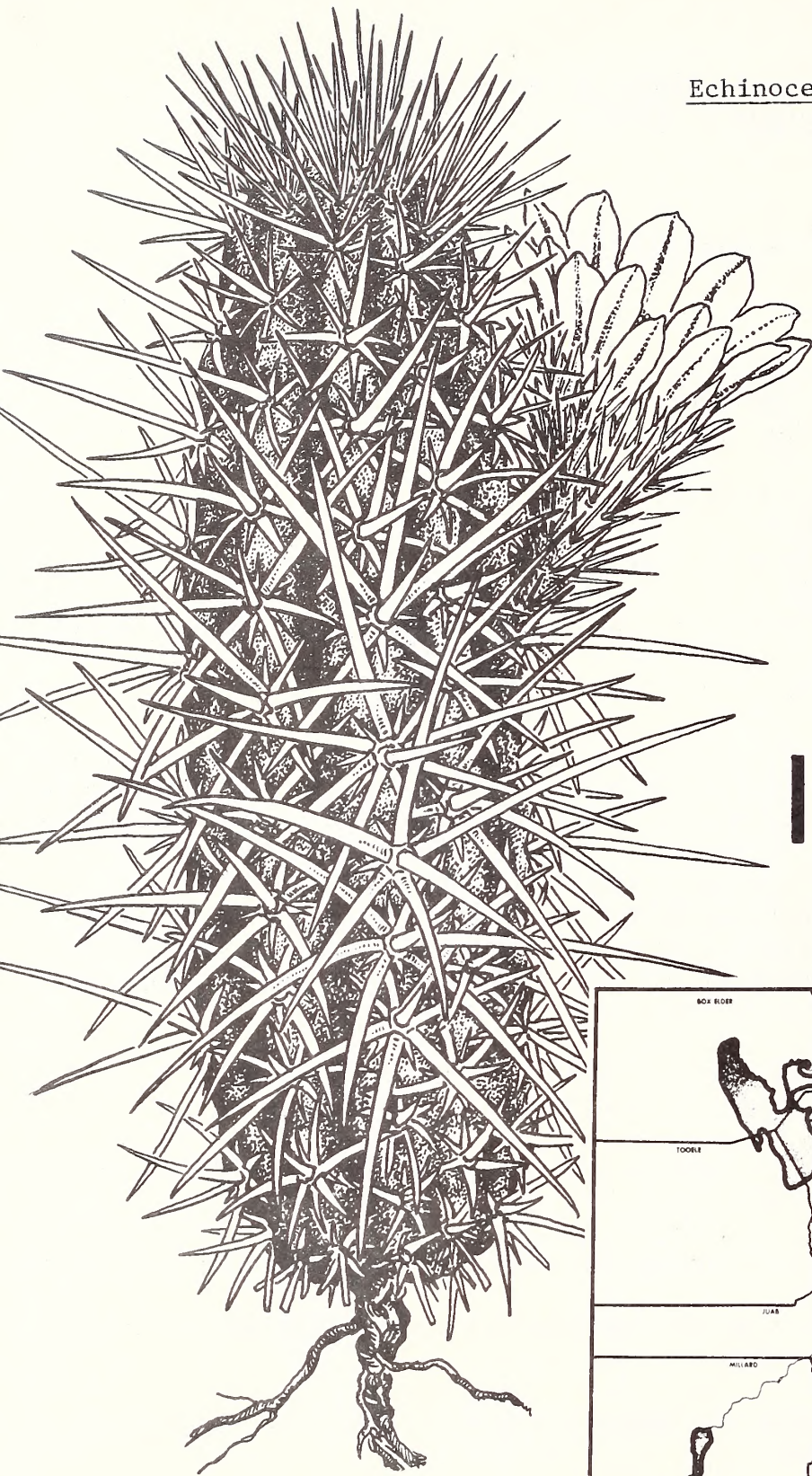
EXISTING OR POTENTIAL THREATS: This purple hedgehog cactus is threatened by commercial exploitation.

LAND OWNERSHIP/MANAGEMENT: Utah State; Bureau of Land Management; private (?)

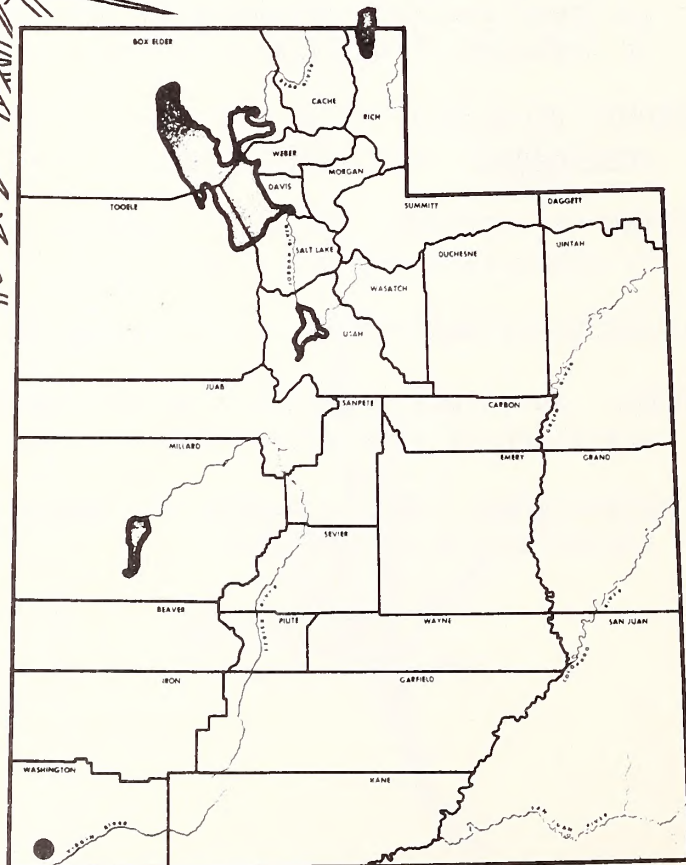
REMARKS: Succulent plants are poorly represented in herbaria making interpretation of taxa difficult.

RECOMMENDATIONS: Cacti, except for Opuntia species, should be regarded as threatened or endangered.

Echinocereus engelmannii
var. purpureus



cm



SCIENTIFIC NAME: Pediocactus sileri (Engelm.) L. Benson

FAMILY: Cactaceae

CITATION: Cact. Succ. J. (Los Angeles) 33: 53. 1961.

SYNONYMS: Echinocactus sileri Engelm. (Contr. U. S. Natl. Herb. 3: 376. 1896.)
Utahia sileri (Engelm.) Britt. & Rose. (Britt. and Rose. Cactaceae 3: 215. 1922.)

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Siler cactus

KNOWN DISTRIBUTION: Washington Co., Utah; Mohave Co., Arizona

HABITAT: Moenkopi Formation, sandy, gypsiferous, seleniferous, calciferous soils high in soluble salts; desert shrub, Atriplex-Tedradymia communities

ELEVATION: 3000 to 5000 feet (915 to 1525 m)

DESCRIPTION: Plants perennial; stems solitary depressed-ovoid to ovoid, 0.5-1 (1.25) dm long, 0.5-1 dm in diameter; tubercles truncate-conical; areoles circular, 1-2 mm apart; spines dense, central spines wholly or partly brownish black, becoming pale with age, nearly perpendicular to stem, straight or slightly curved at the tips, 2-2.8 mm long, nearly circular in cross section; flowers 1.5-2.5 cm across, sepaloid perianth parts maroon-yellow, petaloid parts yellowish to maroon with yellow-green veins; fruit greenish yellow, dry at maturity with a few long imbricate scales above, nearly cylindroid but enlarged above, 1.2-1.5 cm long, 0.6-0.9 cm in diameter; seeds gray.

TAXONOMIC PROBLEMS: None

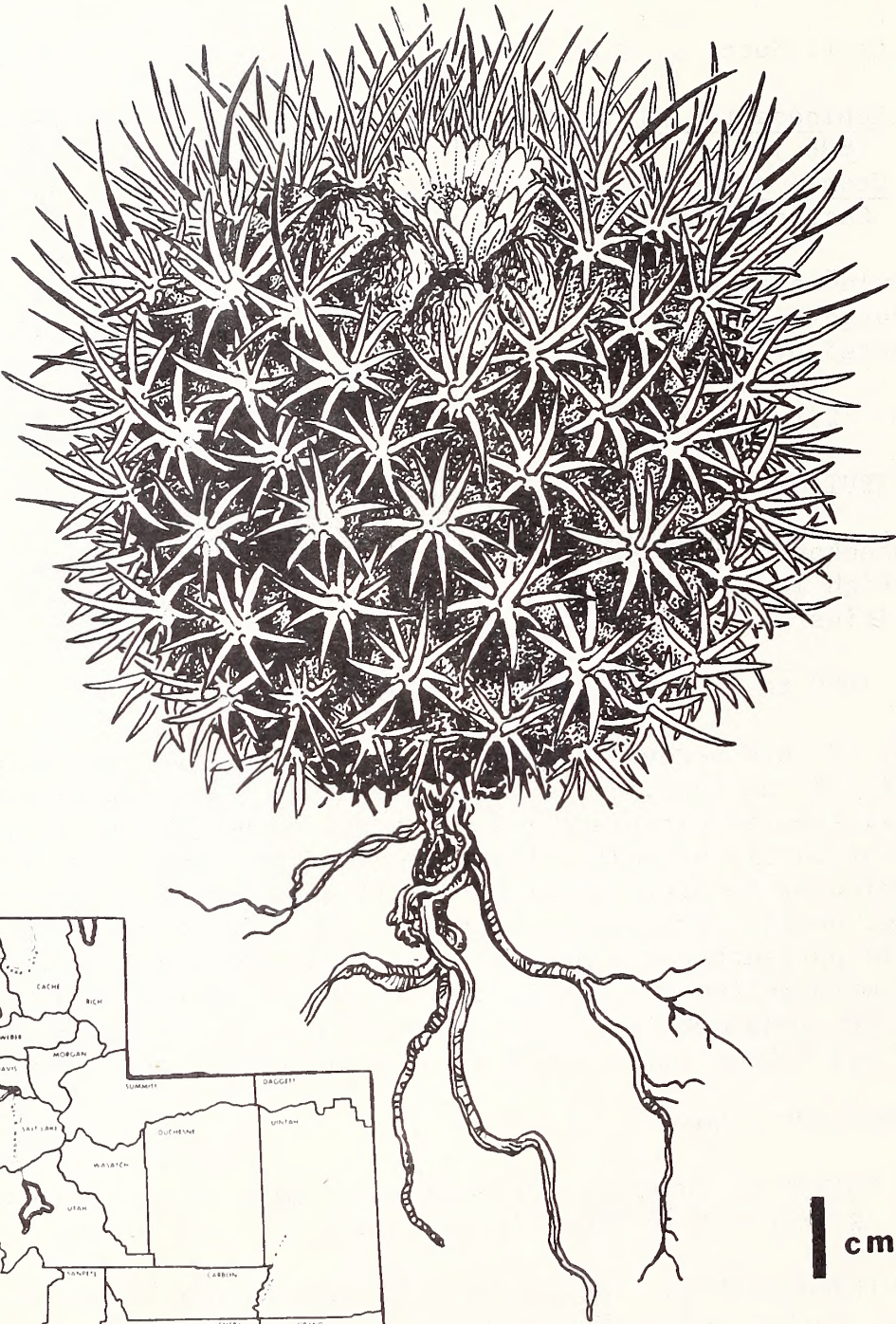
EXISTING OR POTENTIAL THREATS: Private and commercial cactus collectors and the Warner Valley Power Project endanger this plant.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Bureau of Indian Affairs; Kaibab Indian Reservation (in Arizona)

REMARKS: This cactus is known from two main centers; from near Fredonia in Arizona and near St. George in Utah, exclusively on the Moenkopi Formation.

RECOMMENDATIONS: This subglobose, tuberculate cactus should be regarded as endangered.

Pediocactus sileri



SCIENTIFIC NAME: Sclerocactus glaucus (K. Schum.) L. Benson

FAMILY: Cactaceae

CITATION: Cact. Succ. Journ. (Los Angeles) 38: 53. 1966.

SYNONYMS: Echinocactus glaucus K. Schum. (Gesammtb. Kakt: 438. 1898.)
Echinocactus subglaucus Rydb. (Fl. Rocky Mts: 580. 1917.)
Echinocactus whipplei Engelm. and Bigelow var. glaucus (K. Schum.)
J. A. Purpus. (Mitt. Deutsch Dendr. Gresellsch. 50. 1925.)
Sclerocactus franklinii J. W. Evans. (Cactus and Succ. Journ.
11: 74. 1939.)

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed
as endangered, Federal Register, 16 June 1976. Recommended as endangered
by S. L. Welsh, 1978.

COMMON NAME: Uinta Basin hookless cactus

KNOWN DISTRIBUTION: Duchesne and Uintah cos., Utah; Delta Co., Colorado

HABITAT: Gravelly soils on the hills and mesas; desert shrub community

ELEVATION: 4000 to 6000 feet (1200 to 1800 m)

DESCRIPTION: Stems solitary, rarely 2-9, ovoid to globular, 3.8-6.2 cm
long, 3.8-5 cm wide, glaucous; tubercles about 9 mm long above the
ribs; areoles with dense spines, almost obscuring the stem, central
spines 1-3 cm long, not hooked, sometimes curving, radial spines 6-8,
spreading in a circle, about 5 mm long; flower with lavender midribs
and pink margins, 3.8-5 cm wide, 3-3.8 cm long, lanceolate; anthers
yellow; stigmas about 12; fruit barrel-shaped, with a few scales.

TAXONOMIC PROBLEMS: Intermediate morphological specimens are known where
this cactus meets Sclerocactus whipplei in the Uinta Basin.

EXISTING OR POTENTIAL THREATS: S. glaucus is threatened by commercial
exploitation and industrial development.

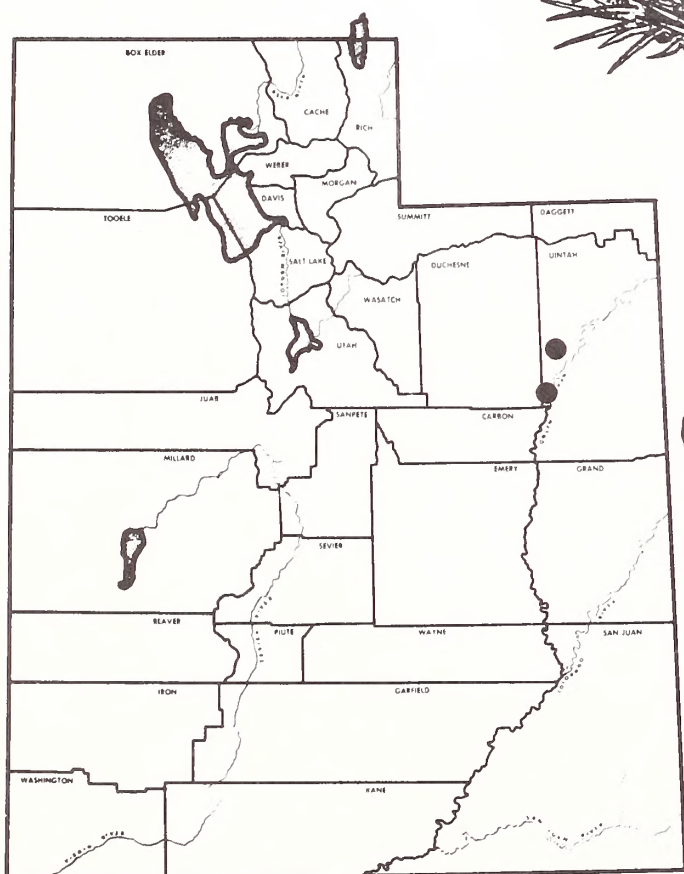
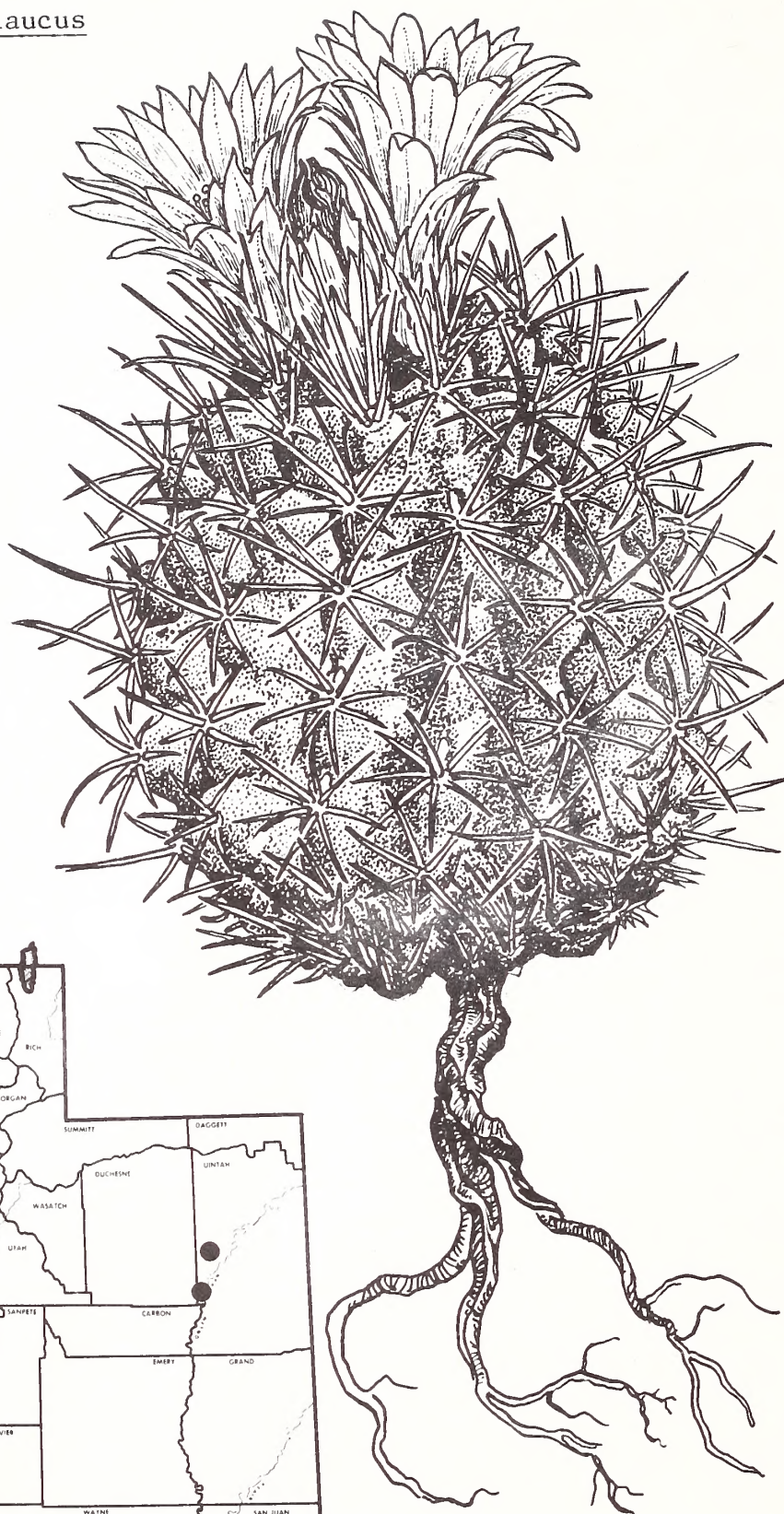
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: There are specimens which lack central spines altogether and others
with a hooked central spine to 2 mm long. Much work is indicated.

RECOMMENDATIONS: The Uinta Basin hookless cactus should be regarded as
endangered.

Sclerocactus glaucus

cm



SCIENTIFIC NAME: Sclerocactus pubispinus (Engelm.) L. Benson

FAMILY: Cactaceae

CITATION: Cact. Ariz. ed. 3: 23. 1969.

SYNONYMS: Echinocactus pubispinus Engelm. (Trans. Acad. Sci. St. Louis 2: 199. 1863.)
Echinocactus whipplei Engelm. and Bigelow var. spinosior Engelm. (Trans. Acad. Sci. St. Louis 2: 199. 1863.)
Sclerocactus whipplei Britt. and Rose var. spinosior (Engelm.) Borssevain and Davidson. (Colorado Cacti 51-52. 1940.)
Echinocactus spinosior (Engelm.) Brandegee. (Kakteenk. 10: 119. 1900.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Great Basin fishhook cactus

KNOWN DISTRIBUTION: Box Elder, Beaver, Juab, Millard, Sevier and Tooele cos., Utah; Elko and White Pine cos., Nevada

HABITAT: Ancient shoreline and islands of Pleistocene lake, rocky soil of hillsides

ELEVATION: 5000 to 6000 feet (1500 to 1800 m)

DESCRIPTION: Stems depressed-globose to ovoid, solitary, 3.8-7.5 cm long to 5-6.2 cm wide, ribs tuberculate but not deeply so; areoles elliptic, spines dense, but not obscuring the stems, about 6 principal ones per areole, lower one hooked, others straight or curved, radial spines white, up to about 8 per areole; flower about 2.5 cm wide, sepaloid parts with a greenish midrib, reddish margins; petaloid parts reddish purple to light lavender; anthers yellow; fruit green, becomes reddish and dry, barrel-shaped.

TAXONOMIC PROBLEMS: The juvenile form of S. pubispinus resembles Pediocactus papyracanthus and further study may reveal valuable information on the evolution of these cacti. Sclerocactus whipplei is a near congener, but is not known from the Great Basin.

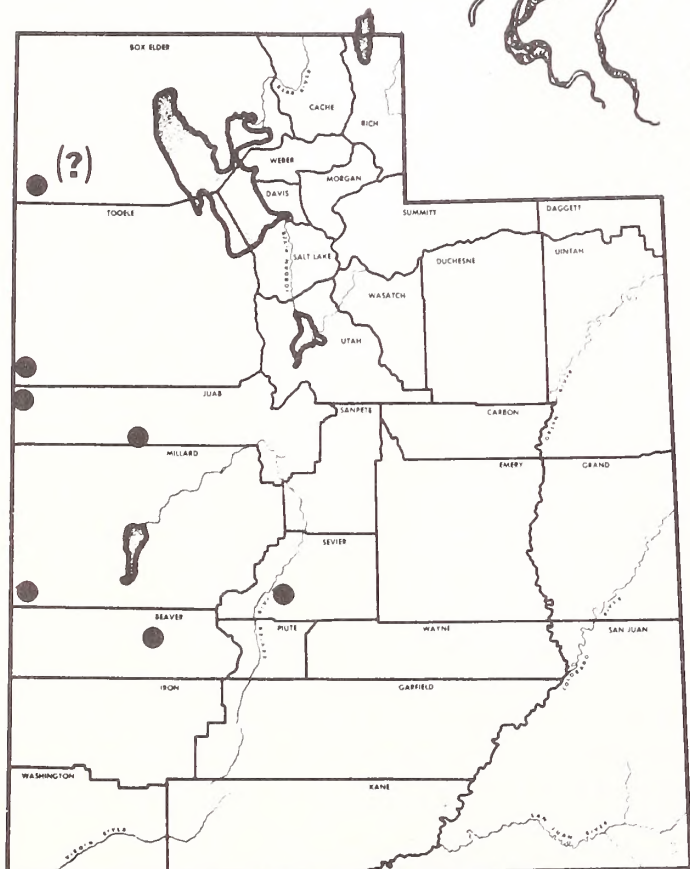
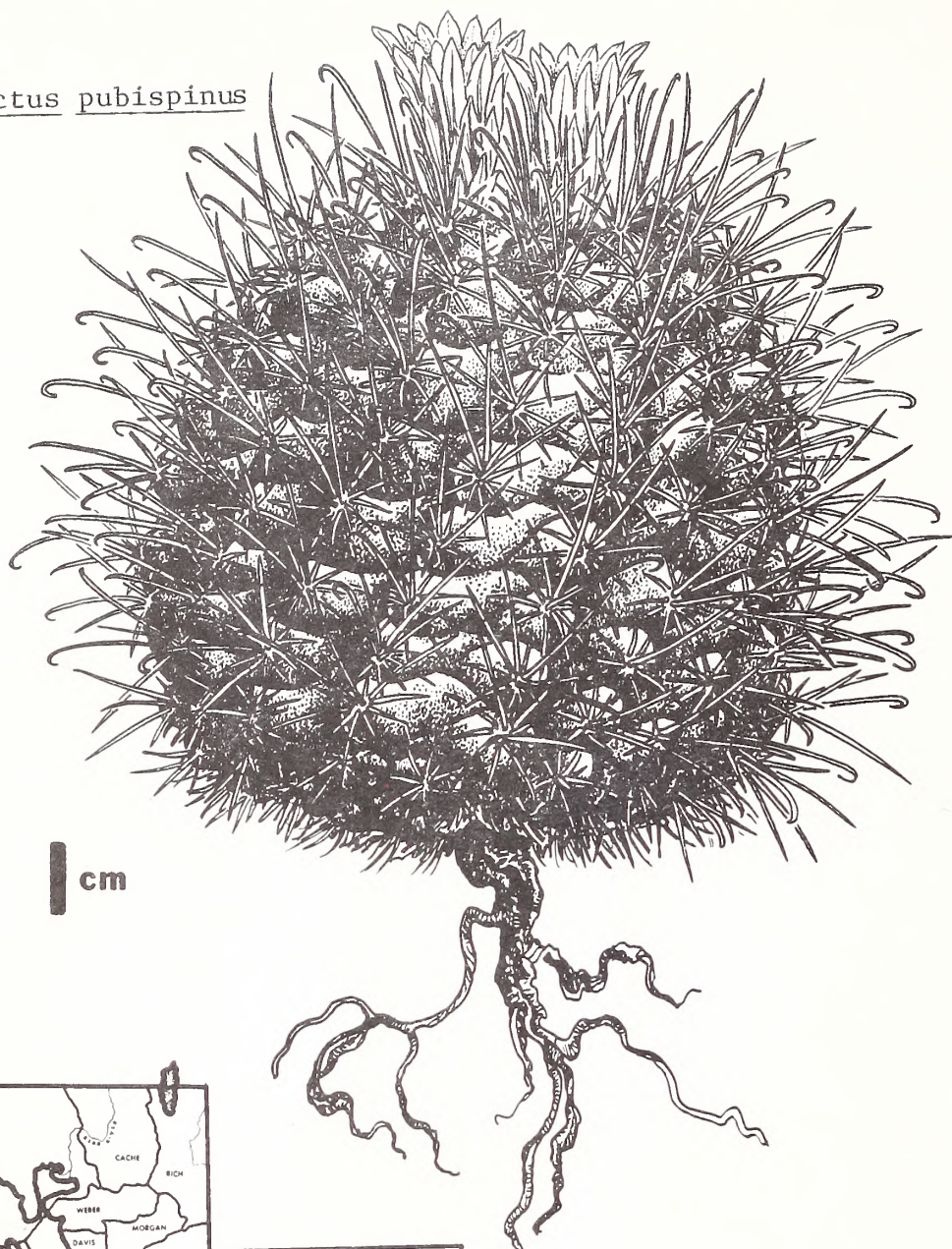
EXISTING OR POTENTIAL THREATS: Though widespread, this cactus is sought by commercial and other private interests for collection and sale. It is not abundant at any location.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; private

REMARKS: The Basin fishhook cactus has pink to rose-purple flowers in the eastern population and dull yellow petals in the western populations. Some authorities regard var. spinosior as distinct.

RECOMMENDATIONS: This interesting plant should be protected from overly avid collecting for either commerce or exchange.

Sclerocactus pubispinus



SCIENTIFIC NAME: Sclerocactus wrightiae L. Benson

FAMILY: Cactaceae

CITATION: Cact. Succ. J. (Los Angeles) 38: 55. 1966.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, July 1, 1975. Proposed as endangered, Federal Register, June 16, 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Wright fishhook cactus

KNOWN DISTRIBUTION: Emery and Wayne cos., Utah

HABITAT: Emery Sandstone Member of Mancos Shale Formation, rimrock, gravel covered banks.

ELEVATION: 3000 to 5000 feet (915 to 1525 m)

DESCRIPTION: Plants perennial, stems solitary, globose, 5-8.7 cm tall, 5-7.5 cm diameter, ribs about 13, the scar of the fruiting area above the areole, vertically elongate; spines not obscuring the stem, central spines 4, the principal (lower) one hooked, radial spines white, 8-10 per areole, spreading at right angles to tubercle; flower 1.9 cm in diameter, sepaloid perianth parts with lavender midribs, petaloid parts nearly white; anthers yellow; fruit without scales, 9-12 mm long, barrel-shaped.

TAXONOMIC PROBLEMS: Related to both S. mesae-verde and S. whipplei, this plant is geographically isolated from the former and is distinctive in flower size and color from the latter.

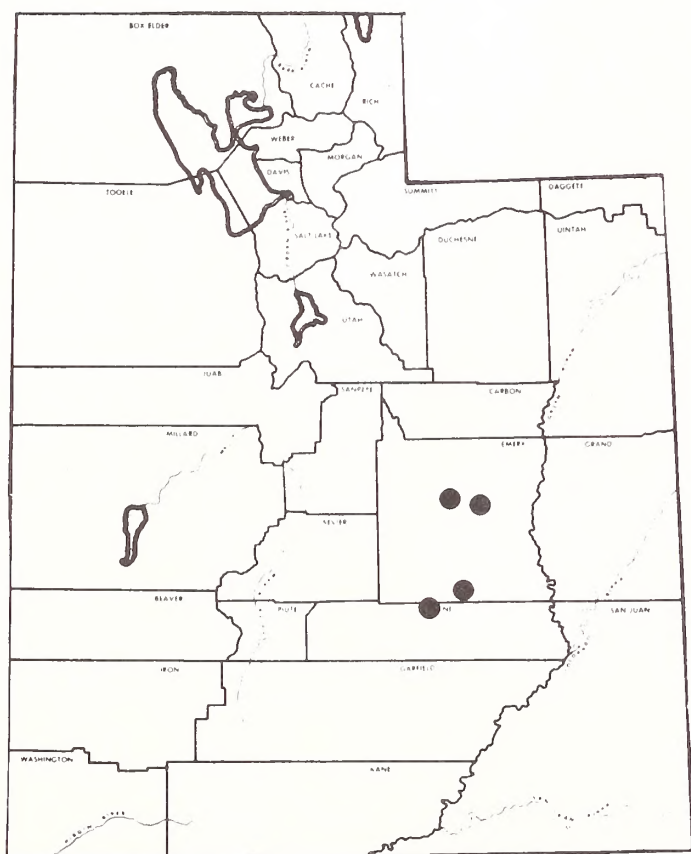
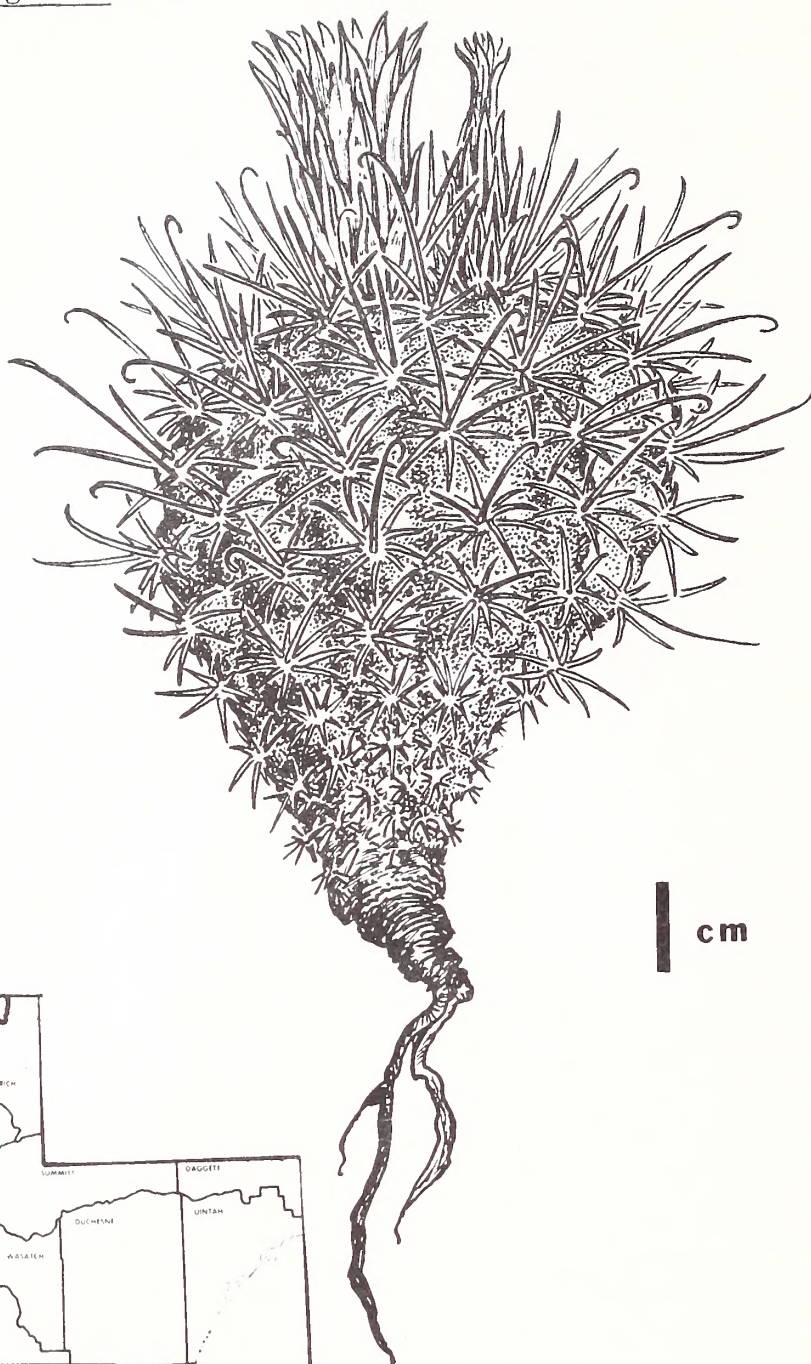
EXISTING OR POTENTIAL THREATS: This plant is subject to exploitation by cactus fanciers.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management, Utah State

REMARKS: This handsome cactus demonstrates wide variation between the rather isolated populations.

RECOMMENDATIONS: All known populations should be set aside and protected from industrial or other developments which result in land clearing.

Sclerocactus wrightiae



SCIENTIFIC NAME: Silene petersonii Maguire var. minor Hitchc. and Maguire

FAMILY: Caryophyllaceae

CITATION: Univ. Wash. Publ. Biol. 13: 38. 1947.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Red Canyon catchfly

KNOWN DISTRIBUTION: Garfield and Iron cos., Utah

HABITAT: Pink Limestone Member of the Wasatch Formation on bare gravelly clay and eroding slopes; mixed ponderosa pine, fir and western bristle cone pine communities

ELEVATION: 7000 to 10,400 feet (2135 to 3172 m)

DESCRIPTION: Plant perennial, deep set taproot giving rise to several rhizomes; stems simple, 5-10 cm tall, pubescence rarely glandular, harshly pubescent; leaves oblanceolate, 2-3 cm long, 4-6 mm wide, 1-nerved, harshly pubescent, upper cauline leaves somewhat reduced; flowers 1-3, seldom 1; calyx campanulate, harshly pubescent, 1-2 cm long; petals 12-15 mm long, blades 5-7 mm long, broadly cuneate, variously toothed or shallowly lobed, but not cleft, pink to rose-purple; capsule ovate, shorter than the calyx, opening by six smooth valves.

TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Off-road trail use, industrial expansion, and timber harvest are threats to this species.

LAND OWNERSHIP/MANAGEMENT: National Park Service; U. S. Forest Service; Utah State; private (?)

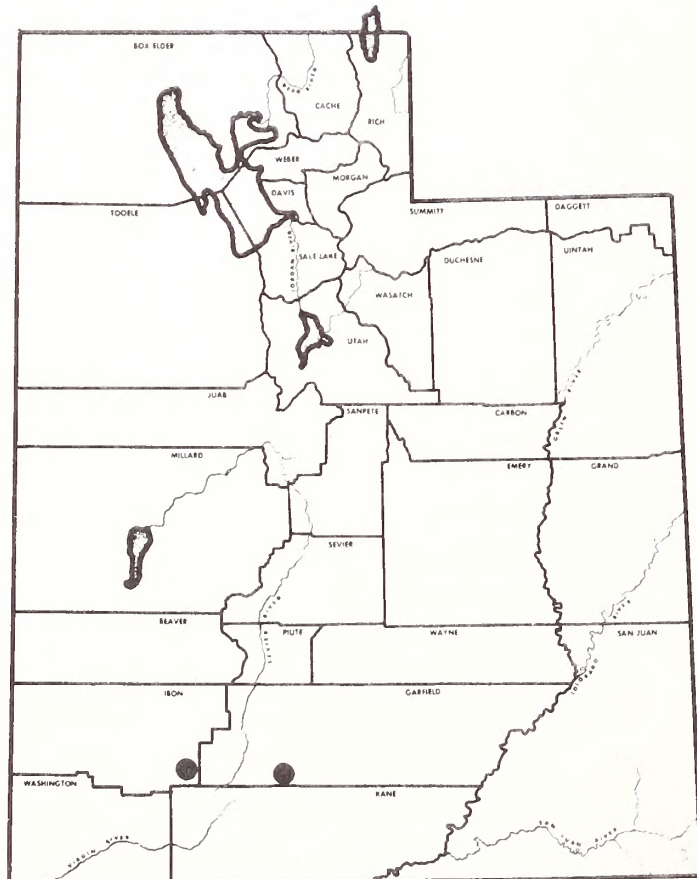
REMARKS: This is a remarkably beautiful plant in its setting of orange-pink limestone gravels.

RECOMMENDATIONS: The population sizes and numbers should be surveyed, and a monitoring program established.



Silene petersonii var. minor

1 cm



SCIENTIFIC NAME: Silene petersonii Maguire var. petersonii

FAMILY: Caryophyllaceae

CITATION: Madroño 6: 24. 1941.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Plateau catchfly

KNOWN DISTRIBUTION: Sanpete Co., Utah

HABITAT: Flagstaff Formation, white limestone gravel, talus slopes; rabbitbrush, scattered spruce, subalpine meadow, or conifer communities

ELEVATION: 9700 to 11,200 feet (2959 to 3416 m)

DESCRIPTION: Plant perennial, deep set tap root giving rise to slender light brown rhizomes, horizontally extensive, with several branches; stems simple, 5-15 cm high; pubescence glandular retrorse; leaves oblanceolate 2-3 cm long, 4-6 mm broad, sessile with sheathing hyaline bases, 1 nerved, harshly glandular pubescent, upper cauline leaves somewhat reduced; flowers 3-7 or seldom only 1, nodding during anthesis, pedicels 1-2.5 cm long; calyx campanulate, inflated at maturity, 1.5-2 cm long, membranous, sometimes purple tinged, nerves purple, glandular puberulent; corolla pink to rose-purple, 2-3 cm long, irregularly toothed shallowly lobed; capsule ovate oblong, shorter than the calyx, opening by 6 smooth valves; seed brown.

TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Limestone exploitation, industrial development, and coal extraction are threats to this species.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service; Utah State (?)

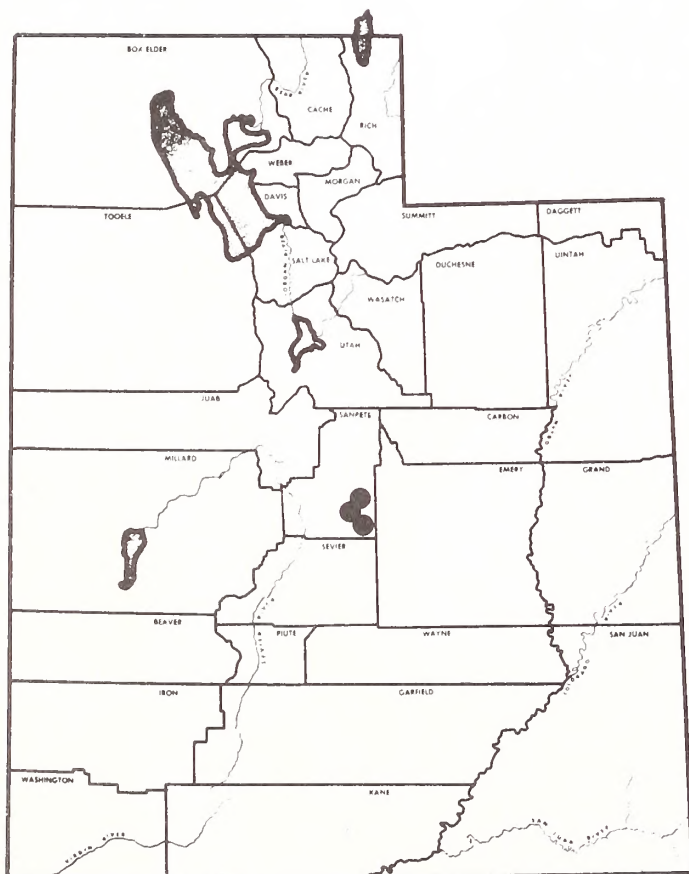
REMARKS: This rare plant has flowers of striking beauty.

RECOMMENDATIONS: This catchfly should be recognized as threatened.

Silene petersonii var. petersonii



1 cm



SCIENTIFIC NAME: Atriplex welshii C. A. Hanson

FAMILY: Chenopodiaceae

CITATION: Stud. Syst. Bot. 1: 1. 1962.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Welsh saltbush

KNOWN DISTRIBUTION: Emery and Grand cos., Utah

HABITAT: Mancos Shale Formation; salt desert shrub community; thin gray clay soil

ELEVATION: 4000 feet (1220 m)

DESCRIPTION: Perennial herbs, woody at the soil level, 1.5-5.0 dm tall to 8 dm wide; branches prostrate, freely rooting in contact with the soil, giving rise to strict annual flowering stems, bark fibrous; spines absent; leaves deciduous, alternate, sessile or subsessile, gray green to somewhat yellowish, scurfy, narrowly oblanceolate to linear, 15-50 mm long, 2-4 mm wide, margins entire; flowers dioecious (a few monocious), staminate flowers yellow in glomerules on terminal spicate panicles, fruiting bracts in clusters of 1-6, sessile or subsessile, 6-9 mm long, 5-8 mm wide, face covered with few to many flattened tubercles, margin united into a terminal attenuated tooth 2-4 mm above body; seeds 2.0-2.5 mm wide, tan, radicle superior.

TAXONOMIC PROBLEMS: Related to A. falcata, A. welshii is distinguished by its narrow foliage, creeping perennial stems, and slow maturing fruit. A. welshii forms hybrids with A. cuneata.

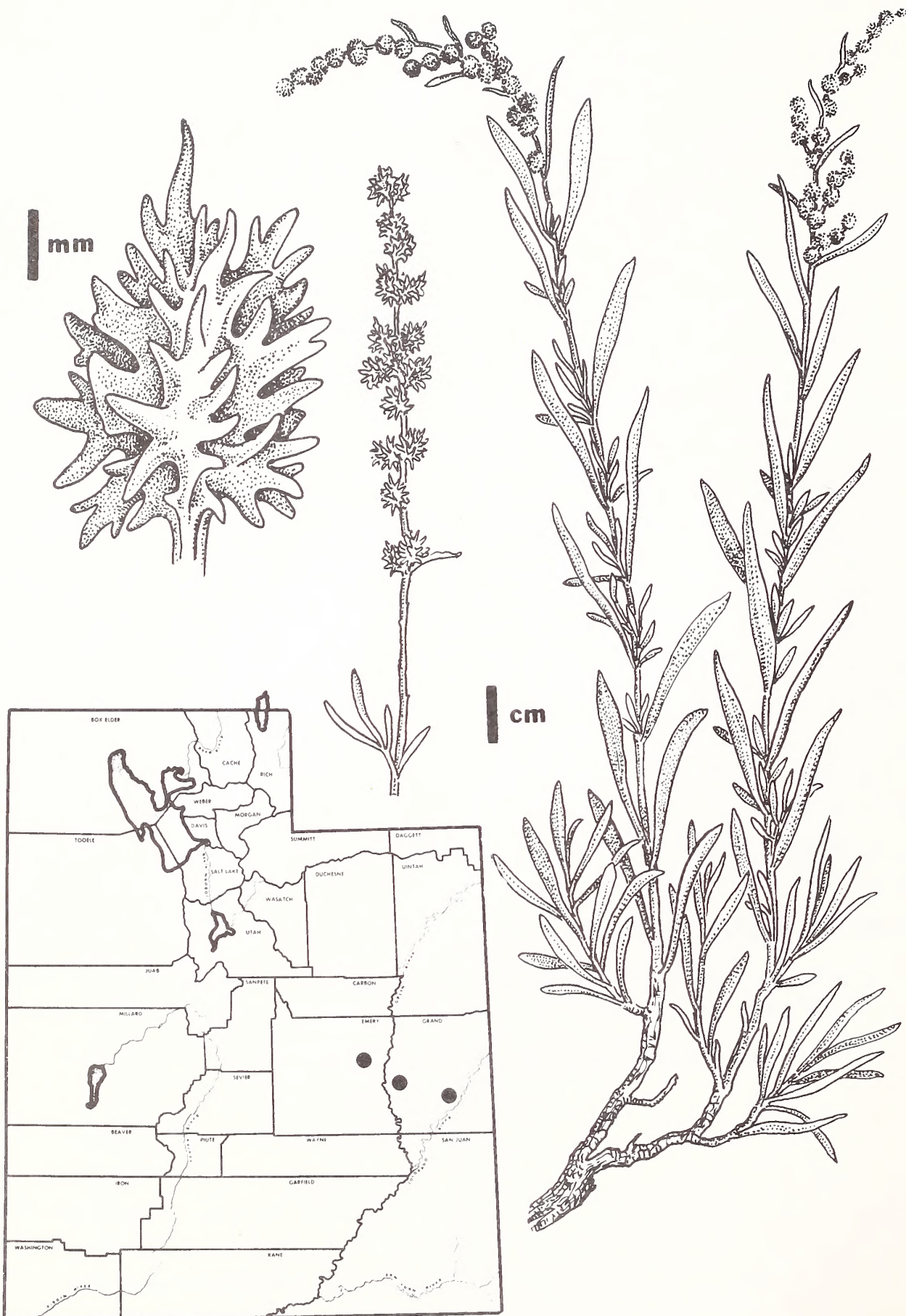
EXISTING OR POTENTIAL THREATS: Mineral exploration, industrial development, and highway construction are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State (?)

REMARKS: The Welsh saltbush has an extremely high tolerance for saline soil (2,000 ppm soluble salts).

RECOMMENDATIONS: This plant should be regarded as threatened.

Atriplex welshii



SCIENTIFIC NAME: Cuscuta warneri Yunker

FAMILY: Cuscutaceae

CITATION: Brittonia 12: 38. 1960.

SYNONYMS: None

STATUS: Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Warner dodder

KNOWN DISTRIBUTION: Millard Co., Utah

HABITAT: Alluvium, sandy soil; desert shrub community

ELEVATION: 4630 feet (1403 m)

DESCRIPTION: Stems filiform; flowers white, fleshy, 5-parted, 2 mm long, in few-flowered glomerules; pedicels scarcely 1 mm long; calyx strongly papillate-hispidulous, one-half or more the length of the corolla tube, divided, lobes triangular-ovate, each has a thickened tubercle; corolla papillate-hispidulous, lobes triangular, tube suburceolate, stamens included; fruit a capsule, globose, finely striate with a thickened collar-like apex.

TAXONOMIC PROBLEMS: None

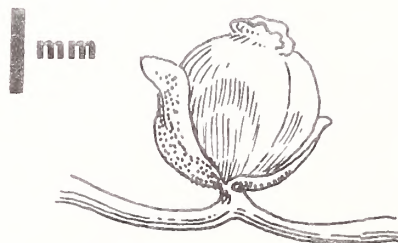
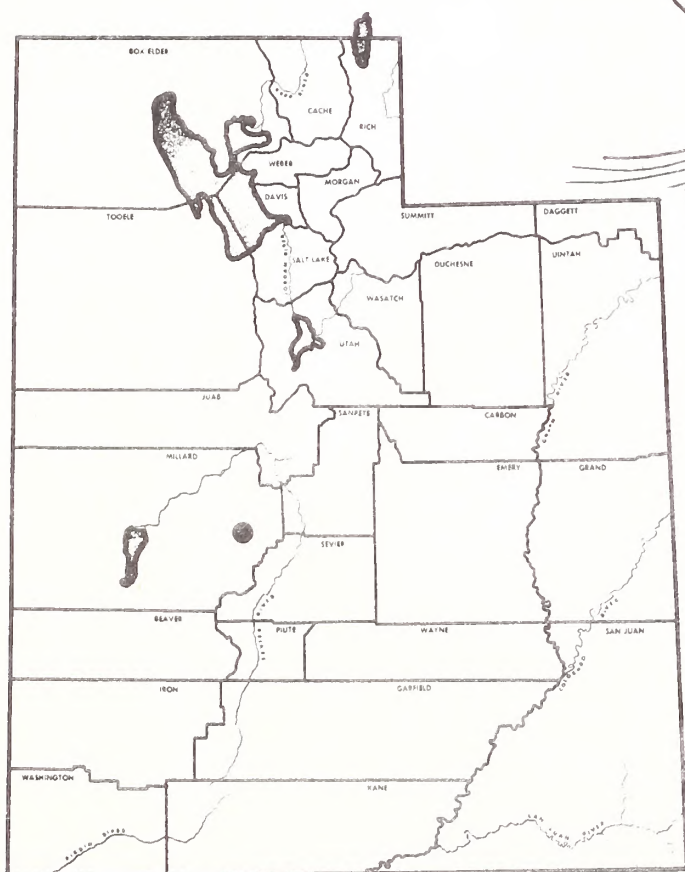
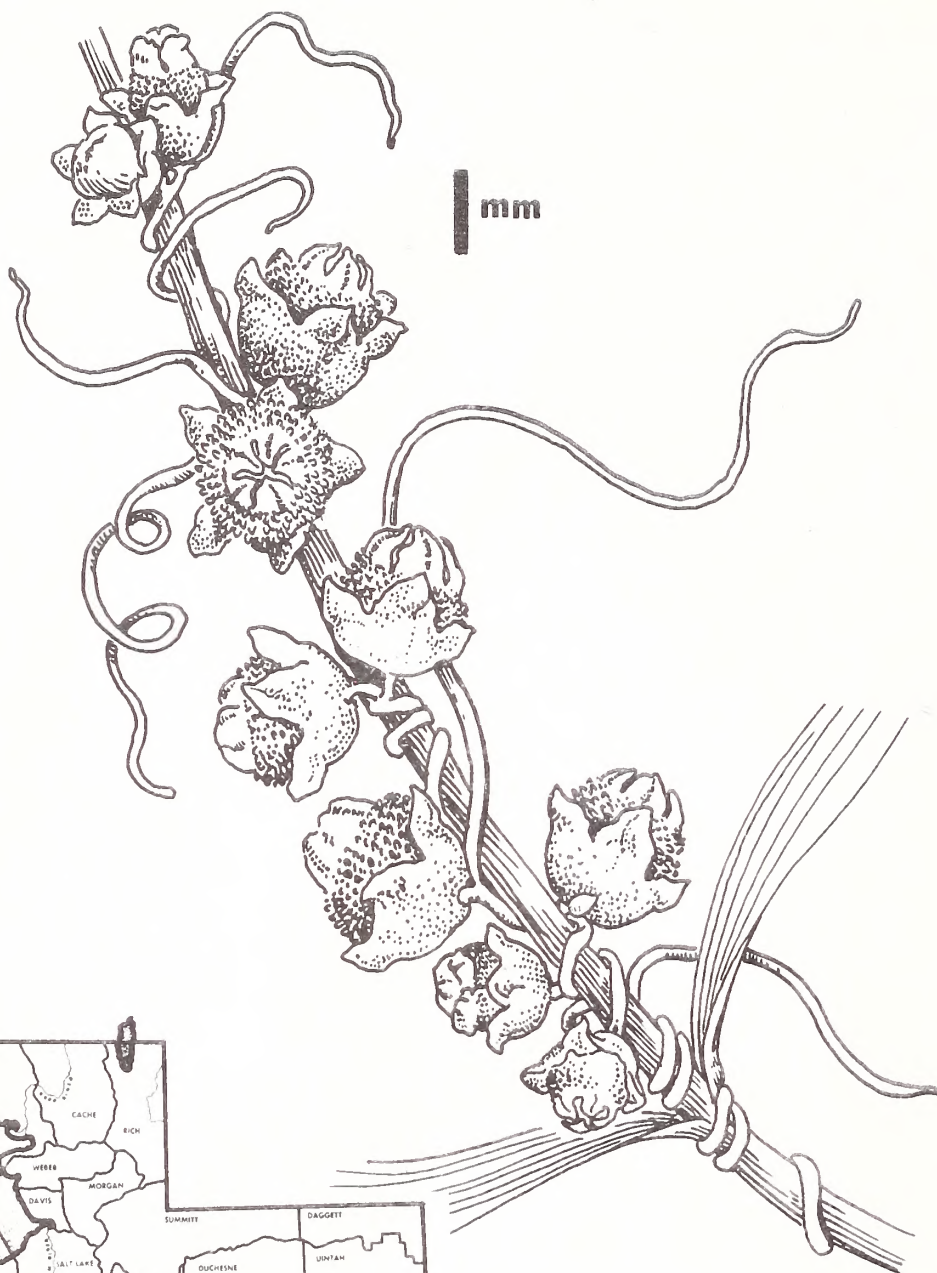
EXISTING OR POTENTIAL THREATS: Unknown

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; possibly Utah State

REMARKS: Warner dodder is possibly extinct in Utah. This interesting plant grows on a host which has never been reported from the Great Basin area, thus the location of this plant near Flowell is in doubt.

RECOMMENDATIONS: The Flowell vicinity should be searched to establish the presence of the host plant.

Cuscuta warneri



SCIENTIFIC NAME: Euphorbia nephradenia Barneby

FAMILY: Euphorbiaceae

CITATION: Leaf1. W. Bot. 10: 314. 1966.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Paria spurge

KNOWN DISTRIBUTION: Emery, Kane and Wayne cos., Utah

HABITAT: Tropic Shale Formation, dark clay hills, blow sand and stabilized dunes; desert shrub and grasslands community

ELEVATION: 4500 to 4700 feet (1373 to 1434 m)

DESCRIPTION: Plants annual; stems erect, somewhat succulent, 1-2.5 dm tall, dichotomously branched; cyathia solitary, shortly pedunculate; leaves opposite, lacking stipules, blade linear, oblanceolate or narrowly elliptic, entire, acute, 1-3 cm long; peduncles 1-2 mm long; cyathium turbinate, about 1 mm long with 5 transversely reniform lobes, 0.5-0.7 mm long, 0.7-1.4 mm wide, glandular appendages, yellow green; capsule stipitate; stipe recurved, 4-6 mm long; seeds oblong, obovoid, 2.1-2.6 mm long.

TAXONOMIC PROBLEMS: Similar to E. hexagona, E. nephradenia differs in that it has an entirely bisexual cyathia.

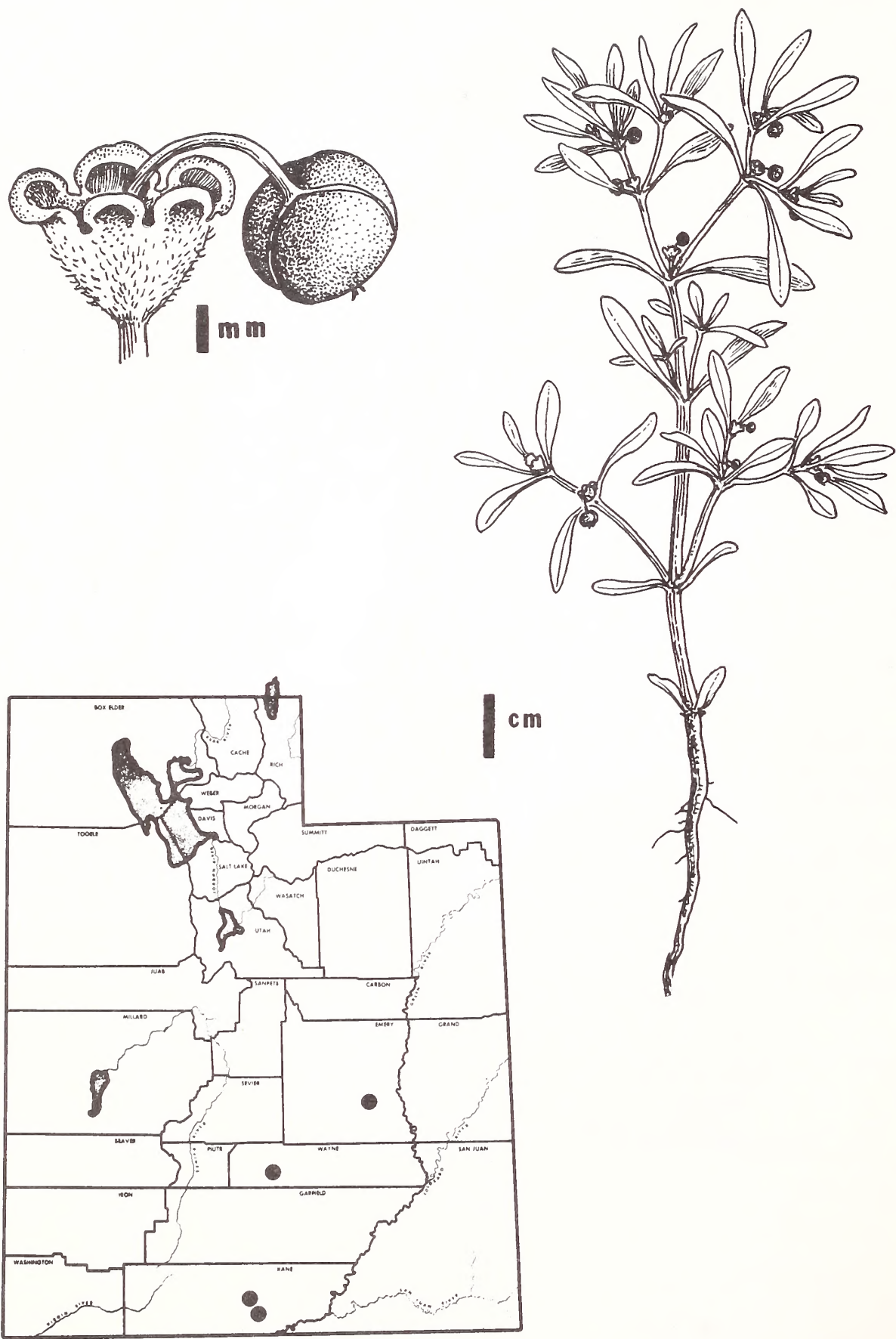
EXISTING OR POTENTIAL THREATS: Potential industrial development, railroad construction, transmission corridor construction, and mineral exploration are threats to this plant.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management

REMARKS: The species has a bipartite distribution; a southern centrum on clay and a northern one on sand.

RECOMMENDATIONS: The Paria spurge should be regarded as threatened.

Euphorbia nephradenia



SCIENTIFIC NAME: Astragalus ampullarius Wats.

FAMILY: Fabaceae

CITATION: Amer. Naturalist 7: 300. 1873.

SYNONYMS: Tragacantha ampullaria (S. Wats.) Kuntze. (Rev. Gen. 943. 1891.)
Phaca ampullaria (S. Wats.) Rydb. (Bull. Torr. Club 40: 47.
1913.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended
as threatened by S. L. Welsh, 1978.

COMMON NAME: Gumbo milkvetch

KNOWN DISTRIBUTION: Kane and Washington cos., Utah; Coconino and Mohave
cos., Arizona

HABITAT: Chinle and Tropic Shale formations, clay soils; mixed desert shrub
and scattered juniper community

ELEVATION: 3200 to 5400 feet (970 to 1650 m)

DESCRIPTION: Perennial, shortly caulescent, 2-28 cm tall, from a deep sub-
terranean caudex; pubescence basifixed; stems prostrate-ascending,
radiating; stipules 2-6 mm long, lowermost connate sheathing; leaves
3-14 cm long; leaflets 7-15, 4-15 mm long, 2-12 mm wide, obovate,
rounded to emarginate, strigose on both sides or glabrous above;
peduncles 0.5-9.5 cm long; racemes 5- to 30-flowered; flowers ascending;
calyx 4.8-7.5 mm long, black strigose; flowers 13.5-22 mm long, pink-
purple with white wing tips or ochroleucous; pods ascending or erect
stipitate, body ovoid to subglobose, inflated, 12-20 mm long, 8-11
mm thick, glabrous.

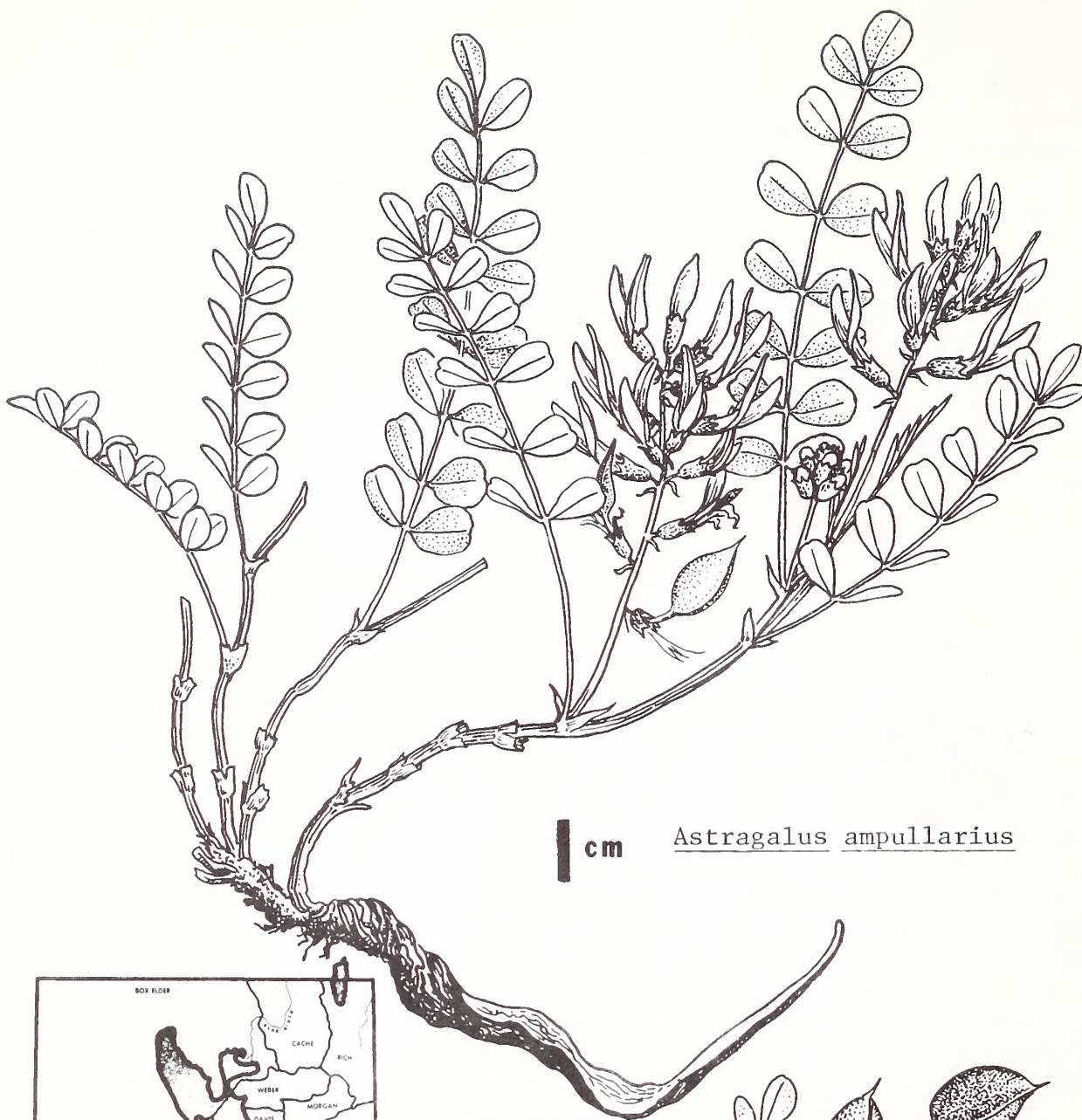
TAXONOMIC PROBLEMS: Certain phases of A. eremiticus resemble A. ampullarius
because of the inflated ovoid-oblong pods, but the caudex of the latter
is subterranean and the stems prostrate-ascending.

EXISTING OR POTENTIAL THREATS: Industrial development, mineral exploration
and exploitation are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Bureau of Indian
Affairs

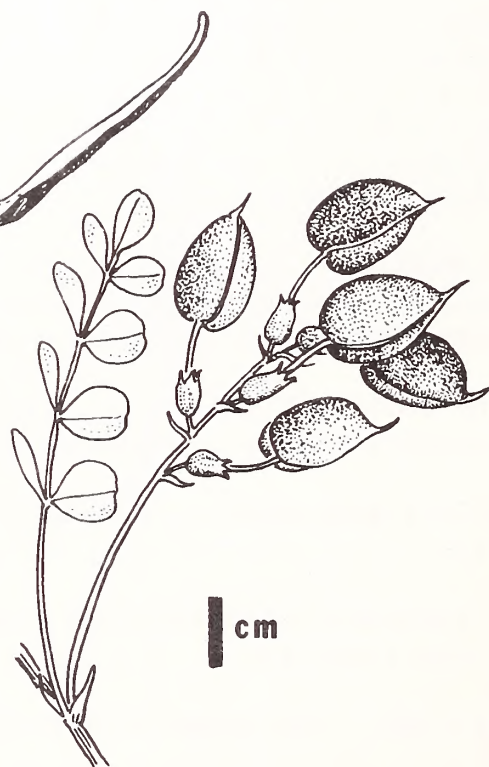
REMARKS: The gumbo milkvetch has a propensity for the variegated shales near
its type locality.

RECOMMENDATIONS: The gumbo milkvetch should be regarded as threatened.

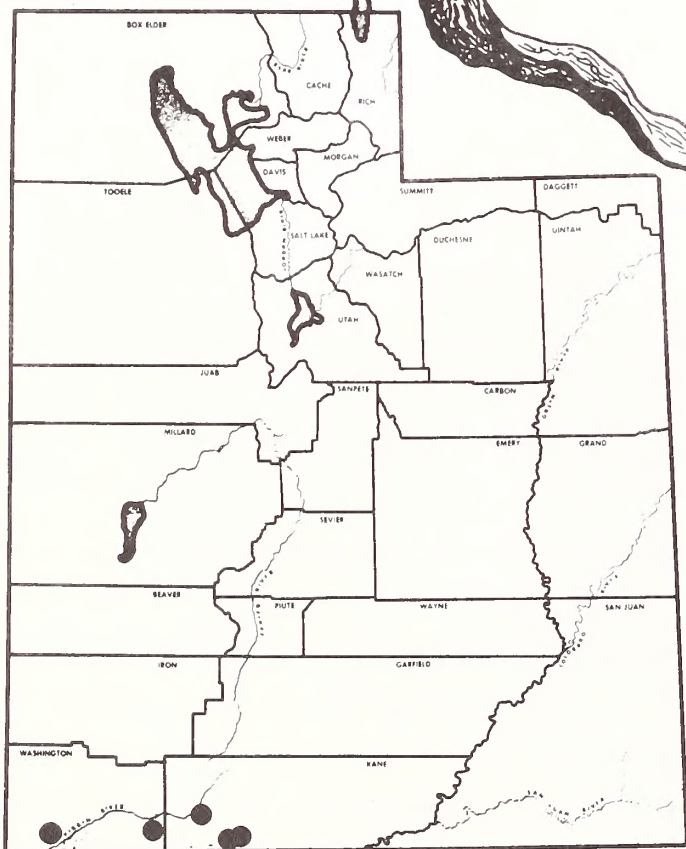


cm

Astragalus ampullarius



cm



SCIENTIFIC NAME: Astragalus barnebyi Welsh and Atwood

FAMILY: Fabaceae

CITATION: Great Basin Naturalist 35: 346. 1975.

SYNONYMS: Astragalus desperatus M. E. Jones var. conspectus Barneby
(Leaflet. W. Bot. 5: 87. 1948).

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended
as threatened by S. L. Welsh, 1978.

COMMON NAME: Barneby milkvetch

KNOWN DISTRIBUTION: Garfield and Wayne cos., Utah; Navajo and Coconino cos.,
Arizona

HABITAT: Navajo Sandstone and Emery Sandstone Members of the Mancos Shale
Formation, Carmel Formation; pinyon-juniper and mixed desert shrub
community

ELEVATION: 4300 to 5960 feet (1312 to 1800 m)

DESCRIPTION: Perennial, acaulescent or subacaulescent, 1.5-5 cm tall from
a branching caudex; pubescence basifixed; stems 0-5 cm long, mostly
obscured by stipules; leaves 1.5-5 cm long; leaflets 7-17, 3-9 mm long,
0.9-3.2 mm wide, elliptic to oblanceolate, acute to obtuse, strigose
on both sides; calyx 6.1-7.7 mm long, pilose with mixed black and white
hairs; flowers 12.2-15 mm long, pink-purple bicolored; pods declined,
sessile, or short stipitate, ovoid-ellipsoid curved, 12-19 mm long,
5-6 mm long, 5-6 mm thick, long silky pilose.

TAXONOMIC PROBLEMS: A. barnebyi is a near congener of A. desperatus, from
which it differs in the larger size of flowers and parts, and in the
usually more compact habit of growth.

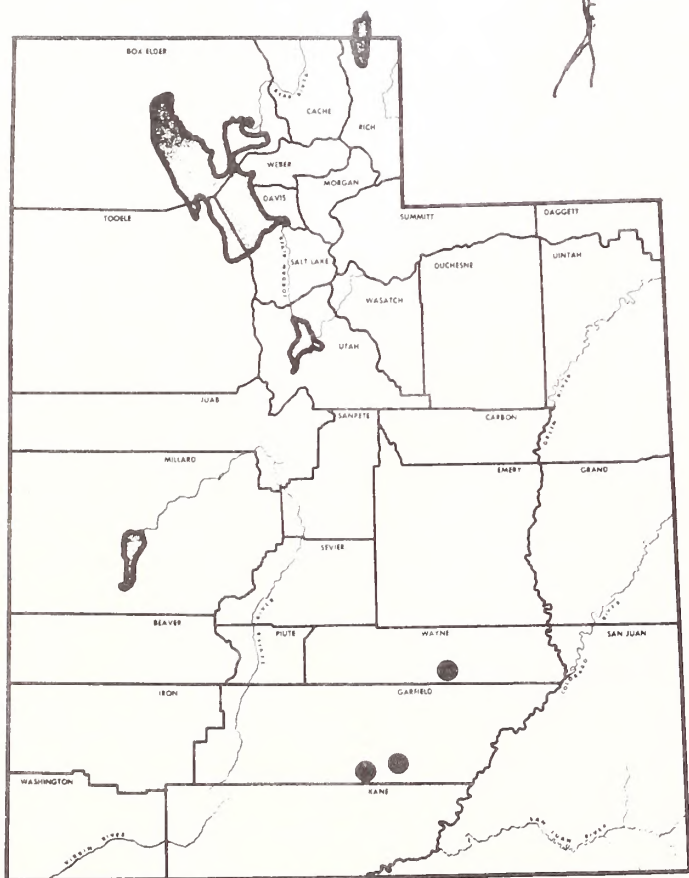
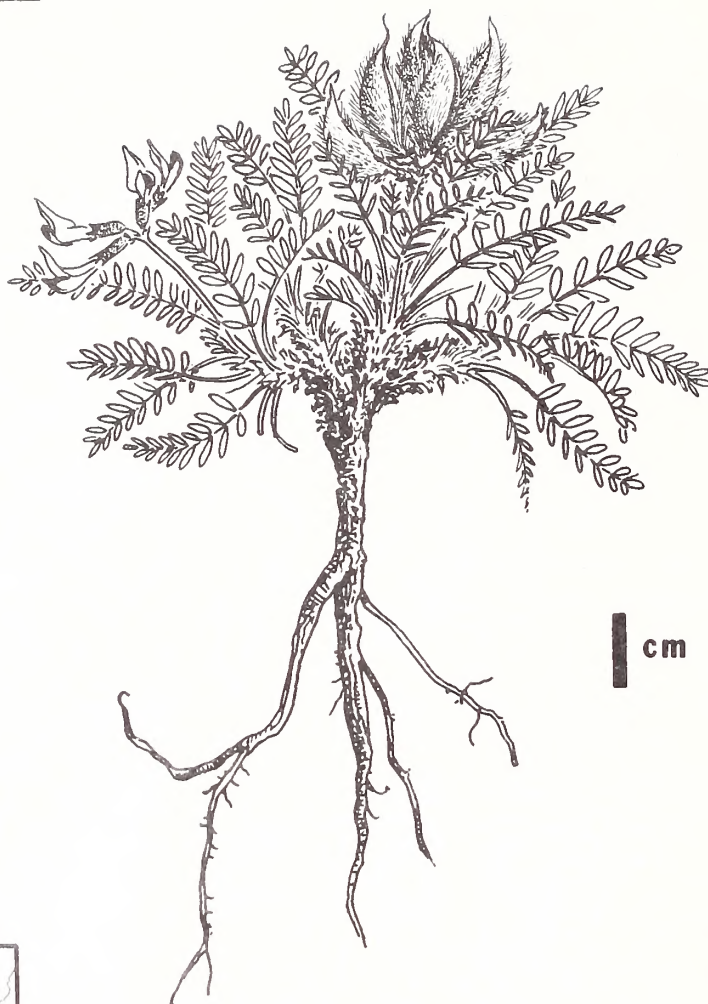
EXISTING OR POTENTIAL THREATS: Industrial development and contaminants,
and construction are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: The Barneby milkvetch is another of a series of dwarf species
occurring mainly on sandstones.

RECOMMENDATIONS: Although known from widely separated populations, the total
number of individuals is small.

Astragalus barnebyi



SCIENTIFIC NAME: Astragalus callithrix Barneby

FAMILY: Fabaceae

CITATION: Leaf1. W. Bot. 3: 102. 1942.

SYNONYMS: None

STATUS: Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Calloway milkvetch

KNOWN DISTRIBUTION: Millard Co., Utah; Nye Co., Nevada

HABITAT: Lake Bonneville alluvium deposits, bare open places on somewhat stable dunes, deep sandy soil on valley floors; desert shrub community

ELEVATION: 5270 to 5555 feet (1586 to 1678 m)

DESCRIPTION: Short lived perennial, subacaulescent, 2-11 cm tall, from a caudex; pubescence basifixed; stems lacking or to 10 cm long, prostrate, internodes often concealed by stipules, all distinct; leaves 2-11 cm long; leaflets 9-21, 2-13 mm long, 1.5-10 mm wide, obovate, suborbicular to lanceolate, obtuse to truncate or emarginate, villous on both sides; racemes 5-15 flowered; flowers ascending at anthesis; flowers bright pink-purple, 16-26 mm long; pods ascending-spreading, sessile, oblong ovoid, 10-12 mm long, 5-7.5 mm thick, dorsiventrally compressed, curved, long hairy, unilocular; seeds 24-34.

TAXONOMIC PROBLEMS: Related to A. marianus, A. callithrix differs in the valves of the pod being hirsute, and not obscured by the hairs.

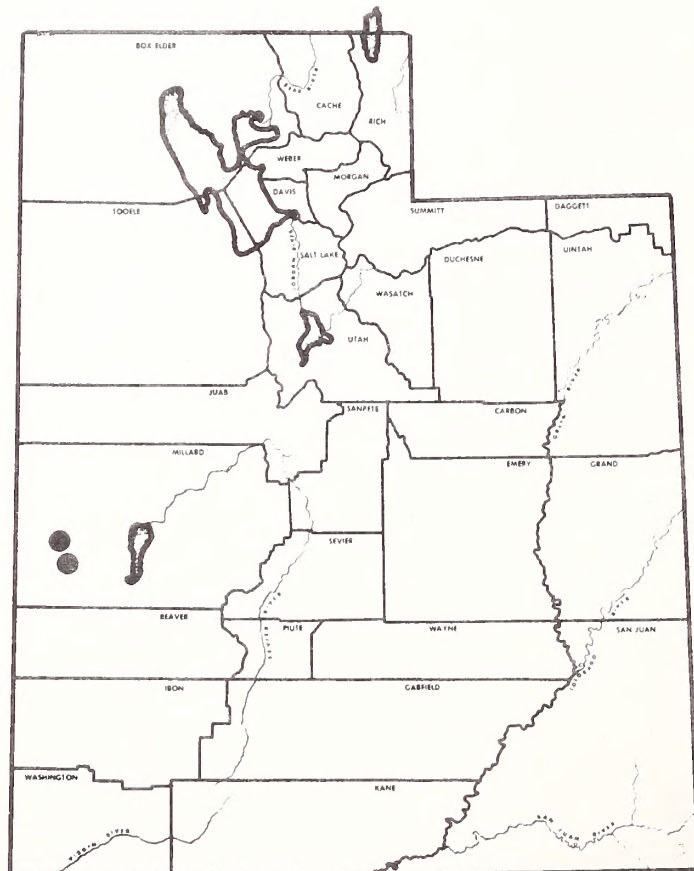
EXISTING OR POTENTIAL THREATS: Changes in the land use and industrial development are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management

REMARKS: This species is exceedingly obscure in Utah and needs further study.

RECOMMENDATIONS: This plant should be regarded as endangered.

Astragalus callithrix



SCIENTIFIC NAME: Astragalus chloodes Barneby

FAMILY: Fabaceae

CITATION: Leaf1. W. Bot. 5: 6. 1947.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Grass milkvetch

KNOWN DISTRIBUTION: Uintah Co., Utah

HABITAT: Entrada, Navajo Sandstone formations, hogbacks and cuestras; pinyon-juniper and mixed desert shrub communities

ELEVATION: 4800 to 5600 feet (1450 to 1700 m)

DESCRIPTION: Perennial, acaulescent or subacaulescent, 5-24 cm tall, from a branching caudex; pubescence malpighian; stems obscured by stipules; stipules 2-8 mm long, all connate-sheathing; leaves simple, 1-13 (17) cm long, 1-3 mm wide, flat or involute, strigose on both sides; calyx 4.5-8.5 mm long, strigose, teeth rigid spreading; flowers 6.2-8.2 mm long, pink-purple; pods erect or spreading, sessile, obliquely lanceolate or oblong in outline, curved, 8-12 mm long, 1.7-3 mm wide, glabrous or strigose unilocular.

TAXONOMIC PROBLEMS: None

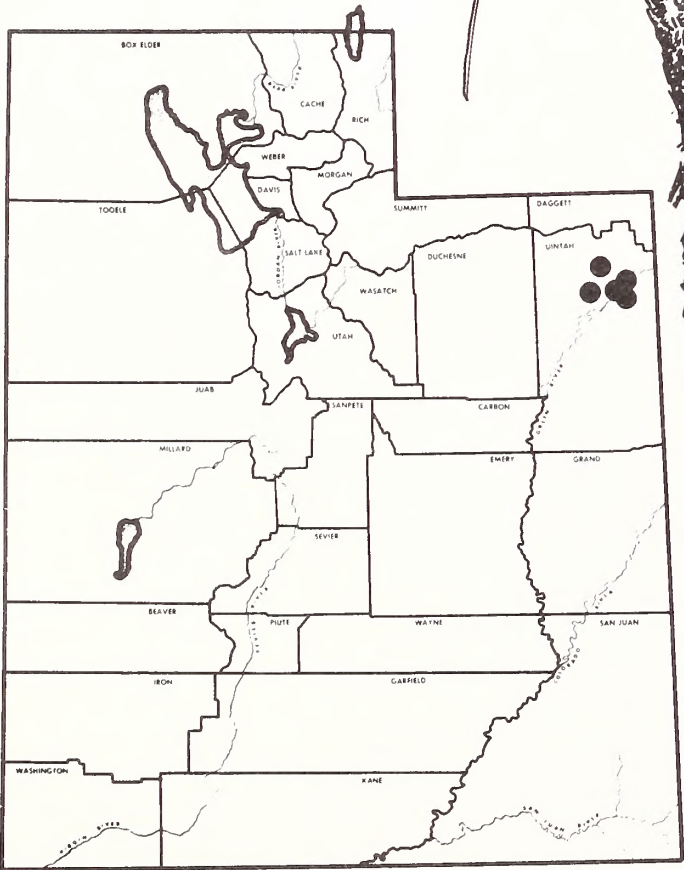
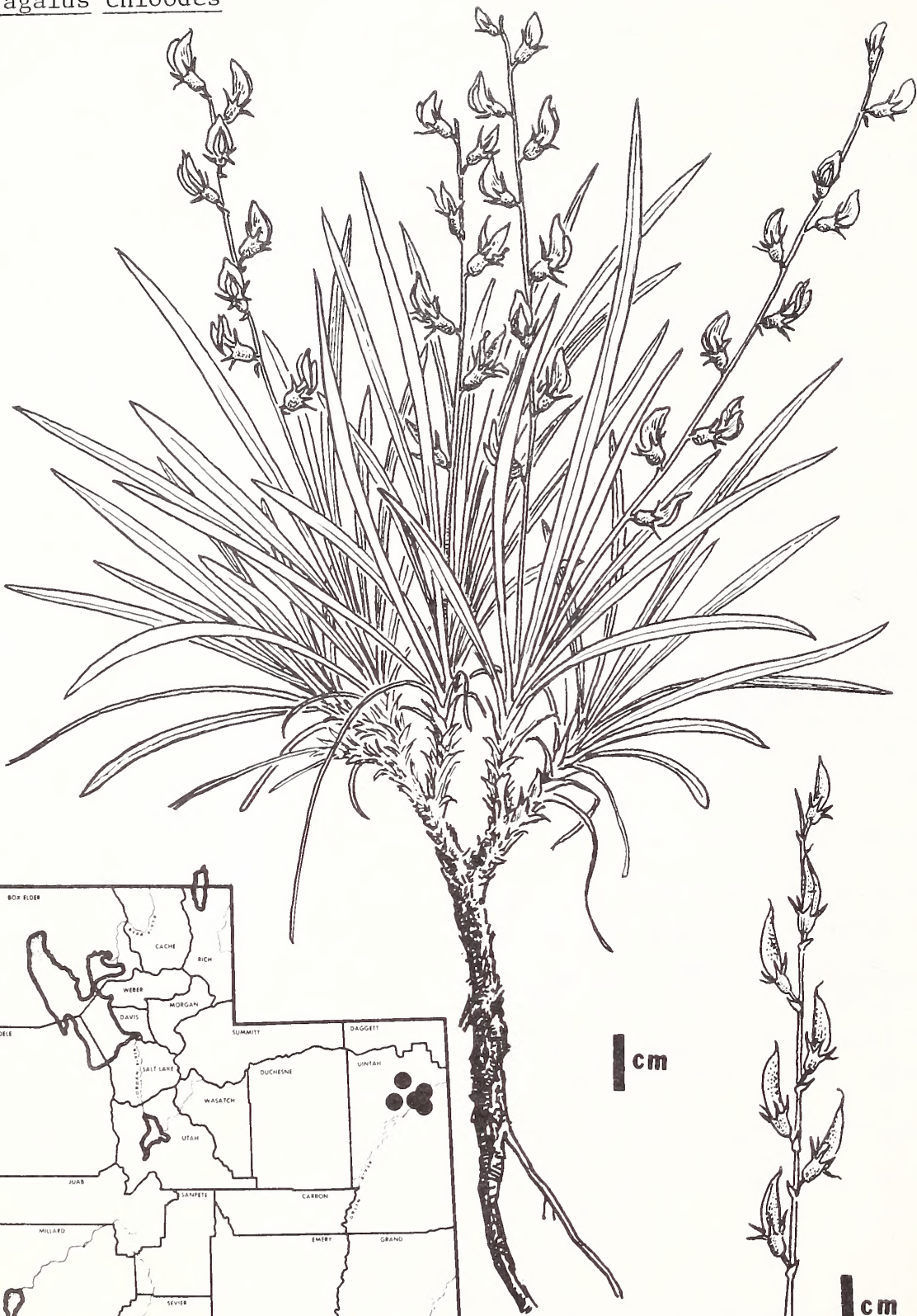
EXISTING OR POTENTIAL THREATS: Industrial development and mineral exploration are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; National Park Service

REMARKS: The grass milkvetch simulates a grass with its narrow leaves and slender flower buds.

RECOMMENDATIONS: The grass milkvetch should be considered as threatened.

Astragalus chloodes



SCIENTIFIC NAME: Astragalus cottamii Welsh

FAMILY: Fabaceae

CITATION: Rhodora 72: 189. 1970.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Cottam milkvetch

KNOWN DISTRIBUTION: San Juan Co., Utah; Navajo Co., Arizona

HABITAT: Cedar Mesa, Kayenta and Entrada Sandstone formations, in weathered depressions and crevices of rimrock and ledges, sandy soil; pinyon-juniper community

ELEVATION: 5922 to 6200 feet (1800 to 1891 m)

DESCRIPTION: Perennial, acaulescent, or subacaulescent, 1.2-8 cm tall, from a branching caudex; pubescence basifixed; stems lacking or obscured by stipules; stipules 2-6 mm long; leaves 1.2-8 cm long; leaflets 9-19 (21), 1-4.2 mm wide, elliptic to oval or oblanceolate, acute, strigose on both sides or glabrate above; racemes 3- to 9-flowered; calyx 6.2-8 mm long, strigose, purplish; flowers 11-17 mm long, pink-purplish or bicolored; pods spreading-descending, sessile, curved, oblong to oblong-lanceolate, triquetrous, the dorsal suture sulcate, bilocular, strigose, usually purplish blotched.

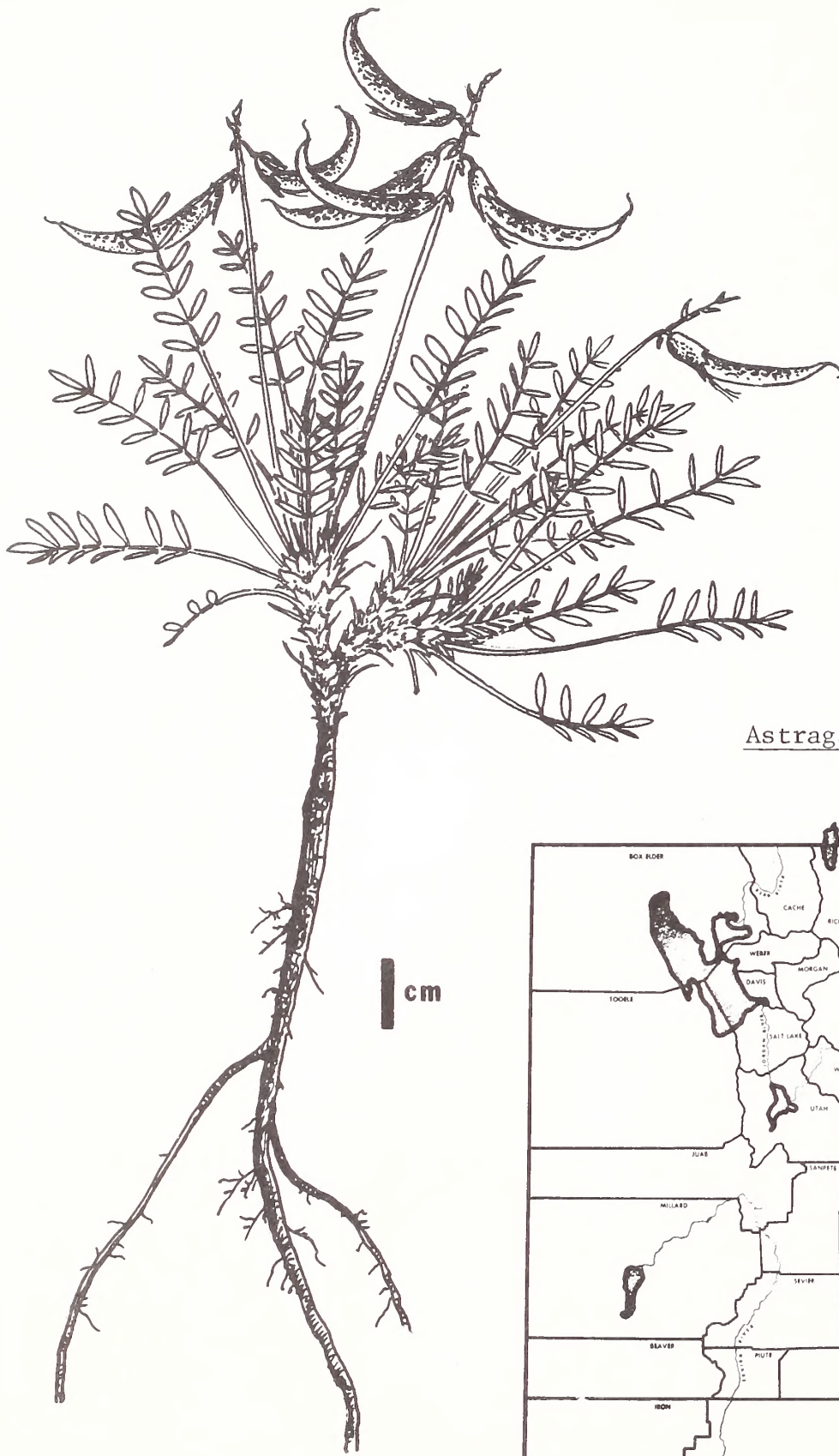
TAXONOMIC PROBLEMS: Similar to A. monumentalis, the Cottam milkvetch is distinguished by larger cylindric calyx tubes and larger flowers.

EXISTING OR POTENTIAL THREATS: Potential industrial development and highway construction threaten this species.

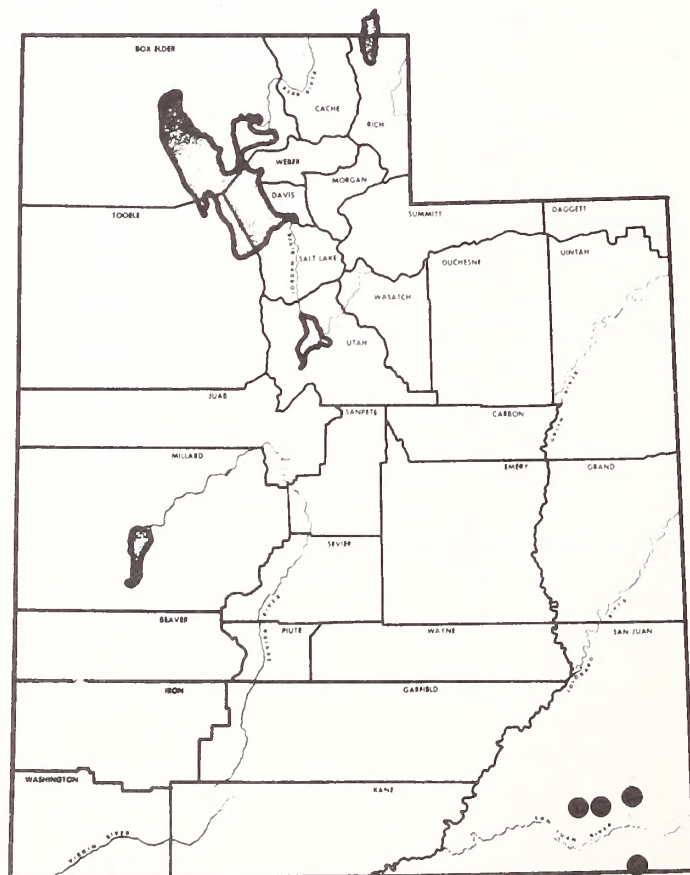
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; National Park Service; Utah State

REMARKS: This diminutive milkvetch is one of a series inhabiting sandstones in southeastern Utah and southwestern Colorado.

RECOMMENDATIONS: This plant species should be regarded as threatened.



Astragalus cottamii



SCIENTIFIC NAME: Astragalus cronquistii Barneby

FAMILY: Fabaceae

CITATION: Mem. New York Bot. Gard. 13: 257. 1964.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Cronquist milkvetch

KNOWN DISTRIBUTION: San Juan Co., Utah

HABITAT: Cutler Formation, low gravelly ridges on red sandstone, sandy clay soil; desert shrub community, principally Atriplex and blackbrush.

ELEVATION: 4000 to 4900 feet (1220 to 1495m)

DESCRIPTION: Perennial plant from a subterranean branching caudex, caulescent, 1.5-4 dm long; stipules distinct; leaflets 7-15, strigose beneath, glabrate above; racemes 6- to 20-flowered; corolla pink-purple, keel and wing tips pale; pods declined, pendulous, sessile or subsessile, narrowly elliptic to oblanceolate in outline, 13-20 mm long, 3-4.8 mm wide, trigonous, grooved dorsally, strigose, bilocular.

TAXONOMIC PROBLEMS: None

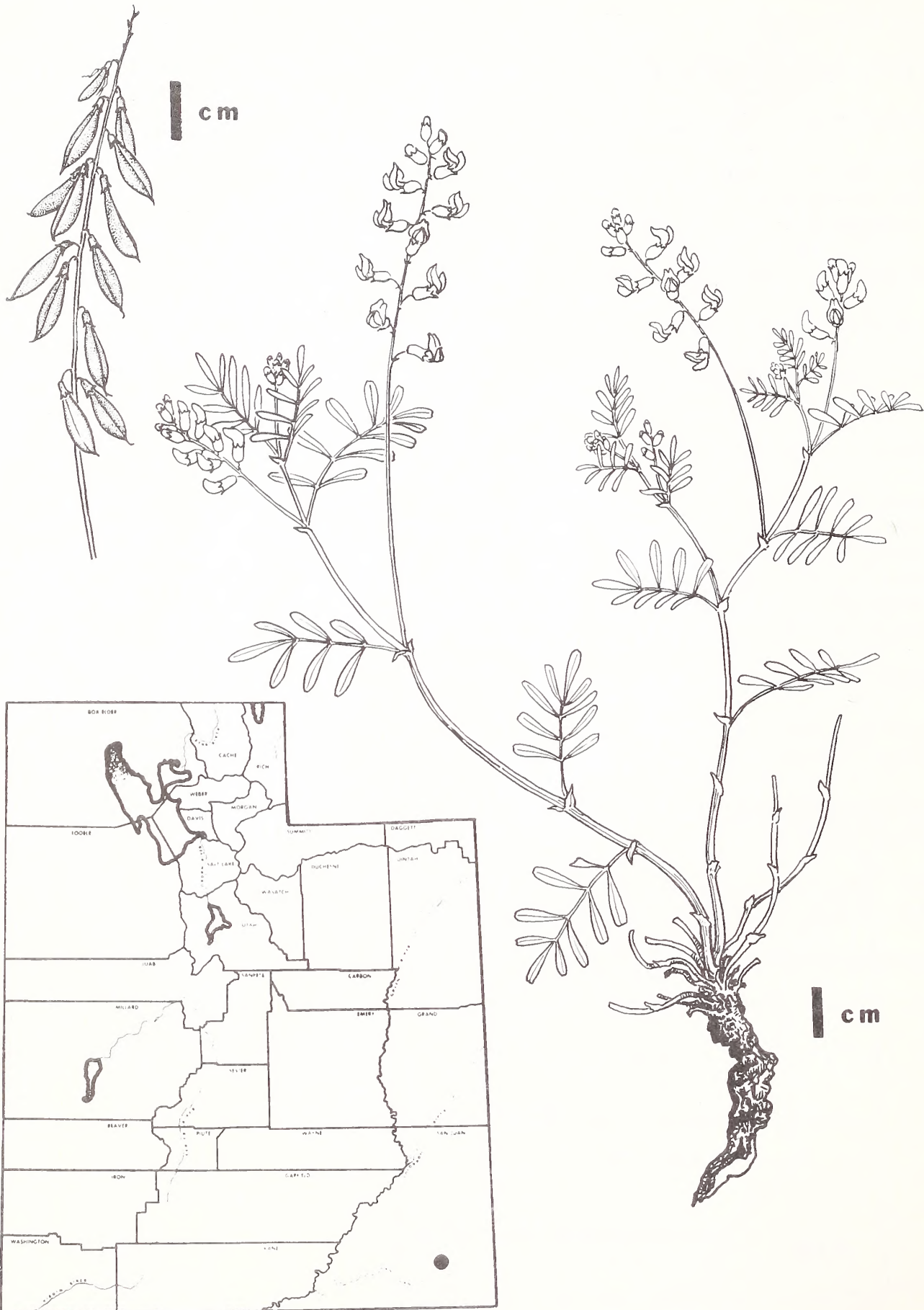
EXISTING OR POTENTIAL THREATS: A. cronquistii is threatened by potential road construction and right-of-way alignment.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; small amount of Utah State land

REMARKS: The Cronquist milkvetch is restricted to the Organ Rock Member of the Cutler Formation. It occupies about two acres.

RECOMMENDATIONS: This plant should be regarded as endangered.

Astragalus cronquistii



SCIENTIFIC NAME: Astragalus desereticus Barneby

FAMILY: Fabaceae

CITATION: Mem. New York Bot. Gard. 13: 634. 1964.

SYNONYMS: None

STATUS: Reviewed as possibly extinct, Federal Register, July 1, 1975.
Proposed as endangered, Federal Register, June 16, 1976. Recommended
as endangered by S. L. Welsh, 1978.

COMMON NAME: Deseret milkvetch

KNOWN DISTRIBUTION: Sanpete Co., Utah

HABITAT: Dry hillsides; sagebrush and scattered pinyon-juniper community.

ELEVATION: 6000 to 6500 feet (1830 to 2000 m)

DESCRIPTION: Perennial, acaulescent to subacaulescent, 4-11 cm tall from a caudex; stems to 5 cm, the nodes mostly obscured by stipules, stipules distinct; leaves 4-11 cm long; leaflets 11-12, elliptic to obovate, strigose, villosulous on both sides; racemes 5-10 flowered; flowers ochroleucous (?), the keel purple tipped; petals graduated, the banner 1.5 cm (2 times the length of the keel); pods ascending, sessile or substipitate, ovoid-ellipsoid, curved, 10-12 mm long, 4-5 mm thick, densely hirsute with lustrous hairs.

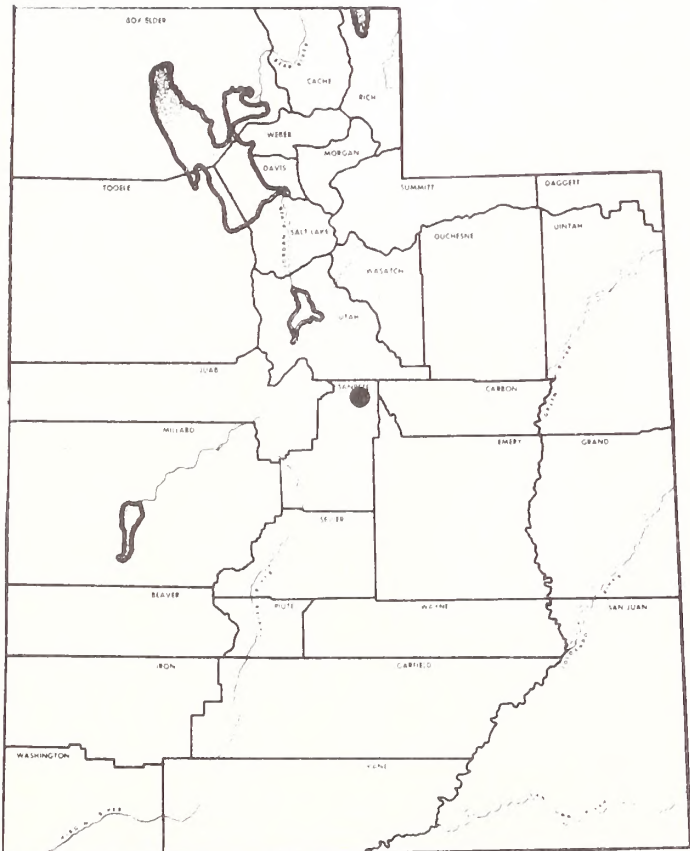
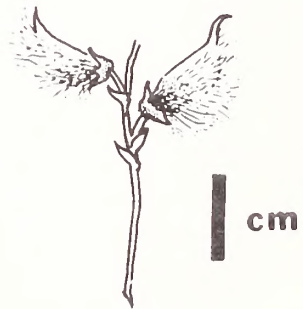
TAXONOMIC PROBLEMS: Allied to A. marianus and A. argophyllus var. martinii, this plant is distinguished by a densely long hirsute pod, short keel and few seeds.

LAND OWNERSHIP/MANAGEMENT: Private (?)

REMARKS: This species has not been found in recent times, but was noted as common by Tidestrom who collected it in 1909.

RECOMMENDATIONS: This species should be regarded as endangered until an intensive investigation demonstrates it to be extinct.

Astragalus desereticus



SCIENTIFIC NAME: Astragalus detritalis M. E. Jones

FAMILY: Fabaceae

CITATION: Contr. W. Bot. 13: 9. 1910.

SYNONYMS: Homalobus detritalis (M. E. Jones) Rydb. (Fl. Rocky Mts. 1063. 1917.)

Astragalus spectabilis C. L. Porter. (Rhodora 54: 160. 1952.)

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Debris milkvetch

KNOWN DISTRIBUTION: Duchesne and Uintah cos., Utah; Rio Blanco Co., Colorado

HABITAT: Uinta, Wasatch and Bishop Conglomerate formations, yellow sandstone, gravelly soil; scattered pinyon-juniper community

ELEVATION: 5500 to 8744 feet (1671 to 2654 m)

DESCRIPTION: Perennial, acaulescent, 0.5-8 cm long, from a branching caudex; pubescence malpighian; stems essentially lacking; stipules 3-10 mm long; leaves 0.5-8 cm long, simple or leaflets 3-7, 3-30 mm long and 0.5-2.5 mm wide, narrowly oblanceolate, spinulose tipped, strigose on both sides; calyx 5-9.6 mm long, strigose; flowers 13-20 mm long, pink-purple; pods erect to steeply ascending, sessile, narrowly oblong, straight to curved, 15-38 mm long, laterally compressed, mottled strigose, unilocular.

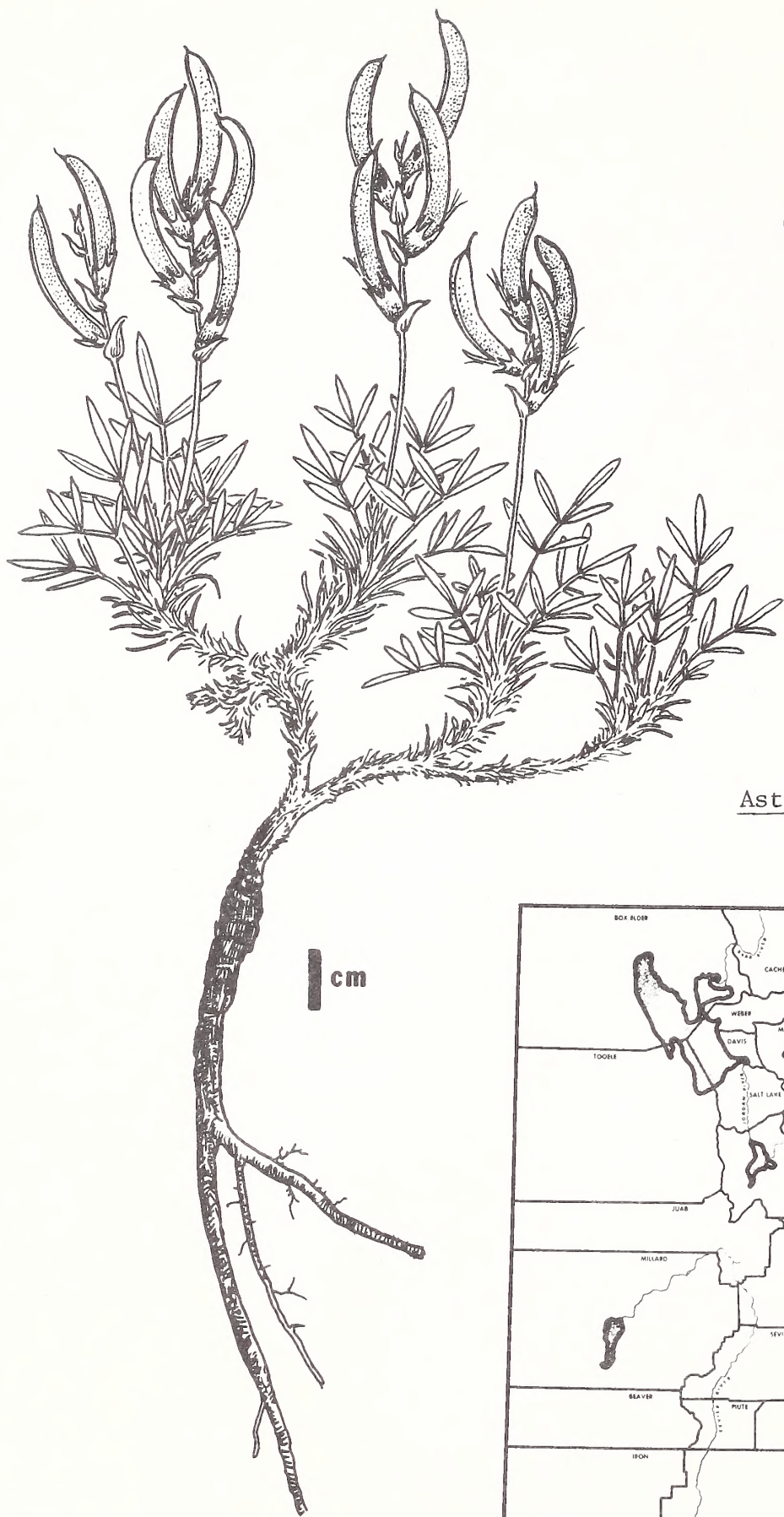
TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Industrial development and land management are potential threats to this species.

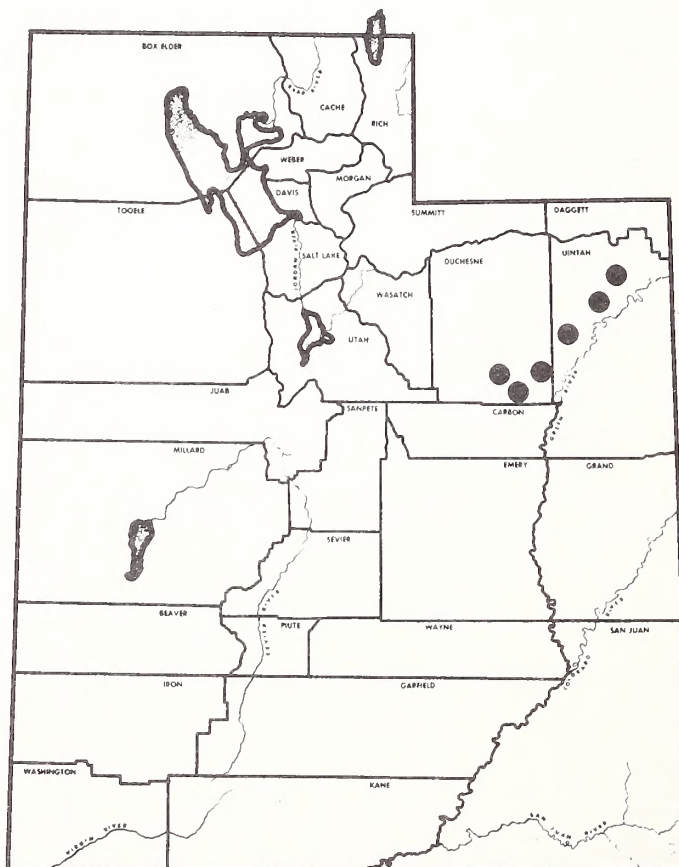
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: The Debris milkvetch is a Uintah Basin endemic of rather broad distribution.

RECOMMENDATIONS: This plant should be downgraded to threatened.



Astragalus detritalis



SCIENTIFIC NAME: Astragalus duchesnensis M. E. Jones

FAMILY: Fabaceae

CITATION: Contr. W. Bot. 13: 9. 1910.

SYNONYMS: Lonchophaea duchesnensis (M. E. Jones) Rydb. (N. Amer. Fl. 24: 313. 1929.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Duchesne milkvetch

KNOWN DISTRIBUTION: Duchesne and Uintah cos., Utah

HABITAT: Duchesne River, Uintah and Moenkopi formations, sand to heavy clay soils; mixed desert shrub and scattered pinyon-juniper community

ELEVATION: 4800 to 5750 feet (1450 to 1750 m)

DESCRIPTION: Perennial, caulescent, 15-35 cm tall, from a branching caudex; pubescence basifixed; stems straggling to ascending or erect; stipules 3-8 mm long, distinct; leaves 2-10 cm long; leaflets 5-15, 3-20 mm long, 0.5-3 mm wide, linear to oblong or narrowly oblanceolate, obtuse to retuse, strigose on both sides or glabrate above, uppermost leaflet sometimes continuous with rachis; racemes 6- to 22-flowered; flowers ascending; calyx 3.6-5.5 mm long, campanulate; flowers pink-purple with white wing tips; pods declined, sessile, oblong to narrowly oblanceolate in outline, 20-35, 3.3-5 mm thick, dorsiventrally compressed in lower half, becoming laterally compressed in distal portion, strigose, unilocular.

TAXONOMIC PROBLEMS: None

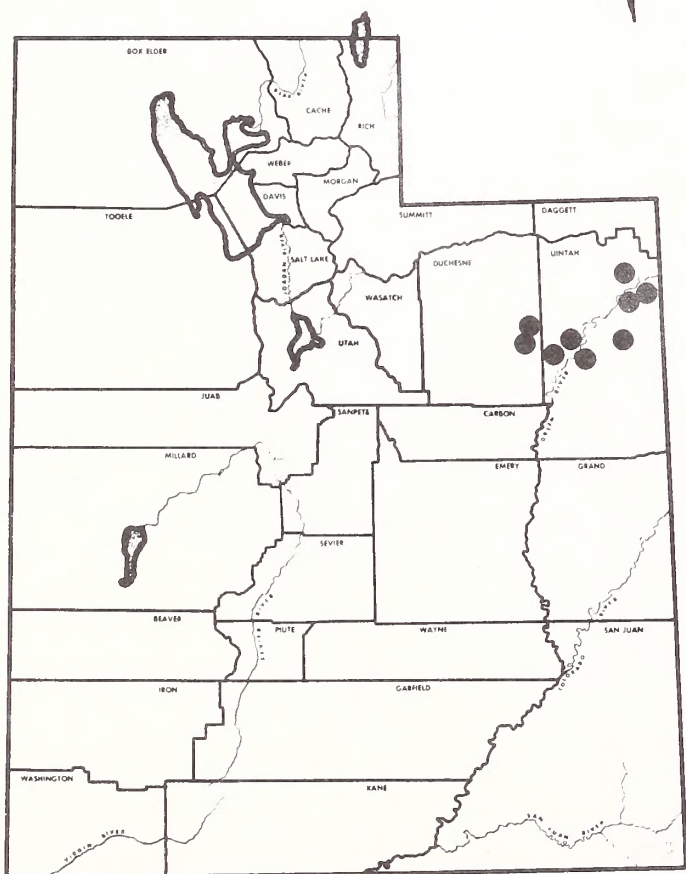
EXISTING OR POTENTIAL THREATS: Industrial development and mineral exploration are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: The Duchesne milkvetch is locally common but restricted in the Uintah Basin.

RECOMMENDATIONS: The Duchesne milkvetch should be regarded as threatened.

Astragalus duchesnensis



SCIENTIFIC NAME: Astragalus hamiltonii C. L. Porter

FAMILY: Fabaceae

CITATION: Rhodora 54: 159. 1952.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Hamilton milkvetch

KNOWN DISTRIBUTION: Uintah Co., Utah

HABITAT: Duchesne River, Uinta, Wasatch and Mowry Shale formations, sandy soil; pinyon-juniper community

ELEVATION: 5500 to 5600 feet (1678 to 1708 m)

DESCRIPTION: Perennial, caulescent, 25-60 cm long, from a shallowly subterranean caudex; pubescence basifixed; stems erect; stipules 1.5-9.5 mm long, all distinct, rarely connate-sheathing; leaves 3-8 cm long, the uppermost (sometimes the lowermost) simple, others with leaflets, 3-7, 10-47 mm long, 2-7 mm wide, elliptic to narrowly oblanceolate, obtuse to retuse, strigose on both sides, terminal leaflet continuous with the rachis; peduncles 2.5-15.5 cm long; racemes 7- to 30-flowered; flowers spreading declined at anthesis, axis 2-11 cm long in fruit; bracts 1-2.5 mm long; pedicels 1.2-3 mm long; calyx 8.2-11 mm long, light brown, gibbous, strigose; flowers 20-24 mm long, ochroleucous; pods pendulous, stipitate, body ellipsoid, 25-35 mm long, 4-7.5 mm thick, dorsiventrally compressed, brownish, strigose, unilocular.

TAXONOMIC PROBLEMS: A. hamiltonii is similar to A. lonchocarpus but the latter is not known from the Uinta Basin.

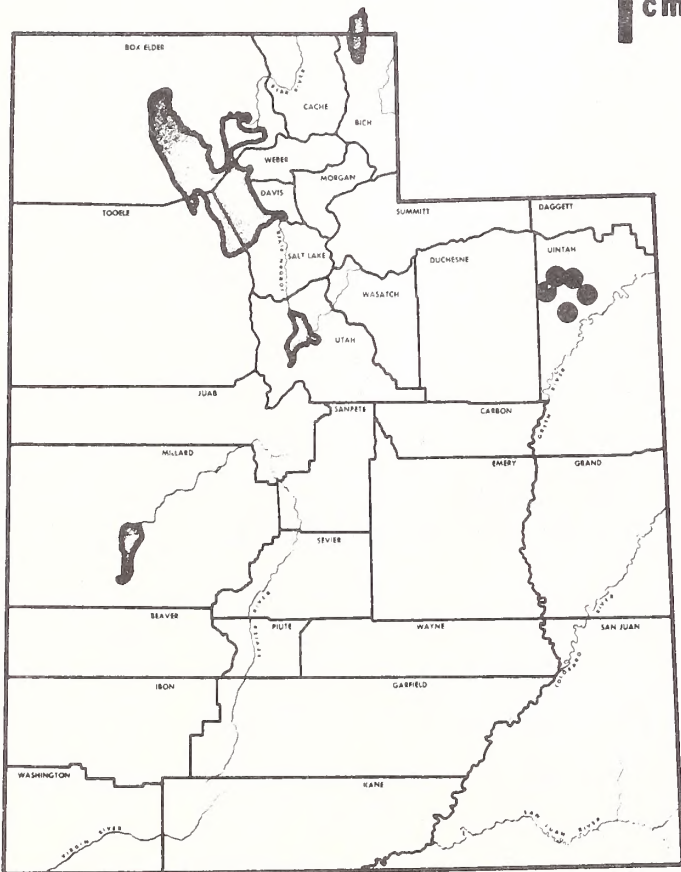
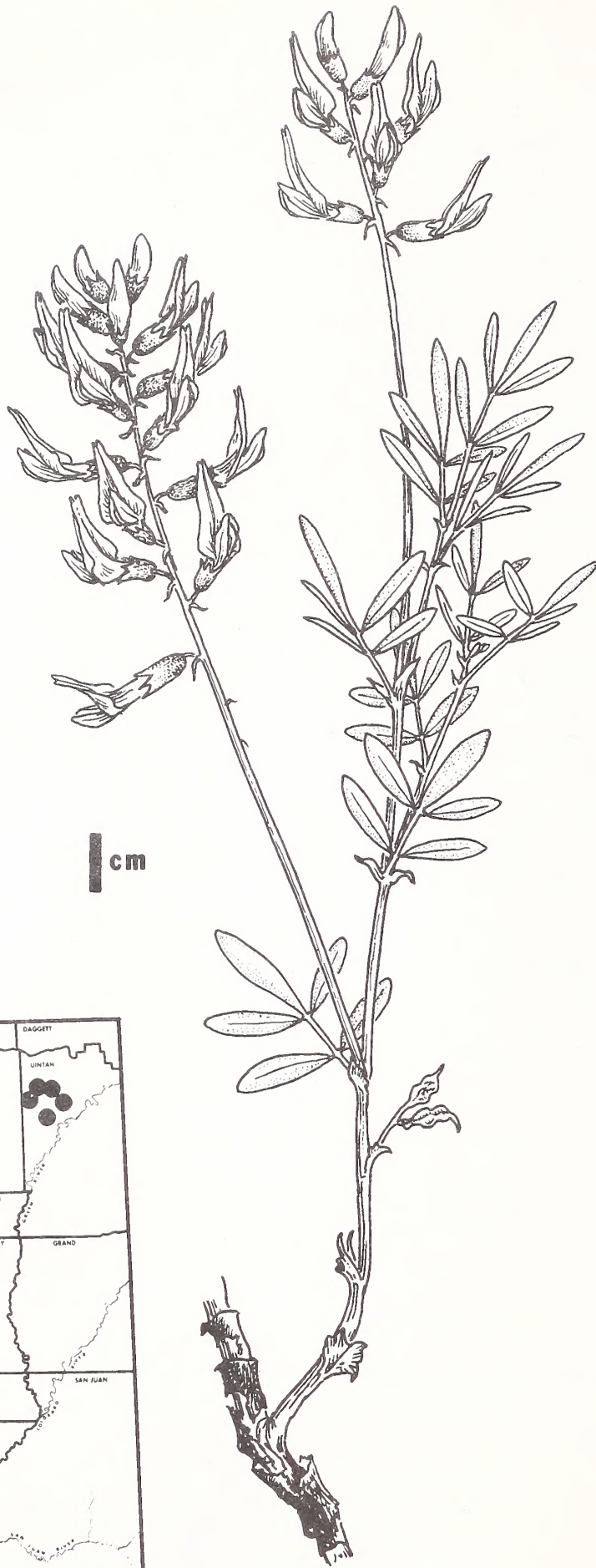
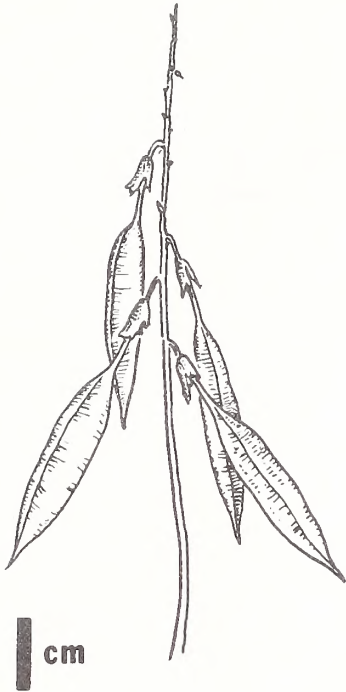
EXISTING OR POTENTIAL THREATS: This plant is threatened by potential industrial land management policy changes.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State; private; Uintah and Ouray Indian Reservation, Bureau of Indian Affairs

REMARKS: The Hamilton milkvetch occurs in a relatively large area in Uintah County.

RECOMMENDATIONS: This plant should be downgraded to threatened.

Astragalus hamiltonii



SCIENTIFIC NAME: Astragalus harrisonii Barneby

FAMILY: Fabaceae

CITATION: Mem. New York Bot. Gard. 13: 270. 1964.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Harrison milkvetch

KNOWN DISTRIBUTION: Wayne Co., Utah

HABITAT: Navajo Sandstone Formation, sandy rock ledges and talus slopes along the canyon; pinyon-juniper community

ELEVATION: 5700 feet (1586 m)

DESCRIPTION: Plants perennial, with a strong taproot and woody caudex, stems green, sparsely strigulose, usually branching at each node, slender (habit appears as a clump of slender stems because the leaf rachises and elongated peduncles all have similar form); leaves few, usually without leaflets, 1.5-4.5 cm long, rachis slender, tapering; stipules present, lower ones membraneous, upper herbaceous, triangular; peduncles greatly surpassing the leaves; inflorescence a raceme, usually 4- to 12-flowered; calyx 2.7-3.4 mm long, strigulose with a few black hairs; flower pale purple; pod pendulous, stipitate, linear-ellipsoid, flattened or slightly depressed dorsally; seeds green.

TAXONOMIC PROBLEMS: Closely related to A. nidularius, it is distinguished by a taller habit with slender internodes, few leaves with developed leaflets, green, slender fusiform pods, and smaller flowers on an elongated axis.

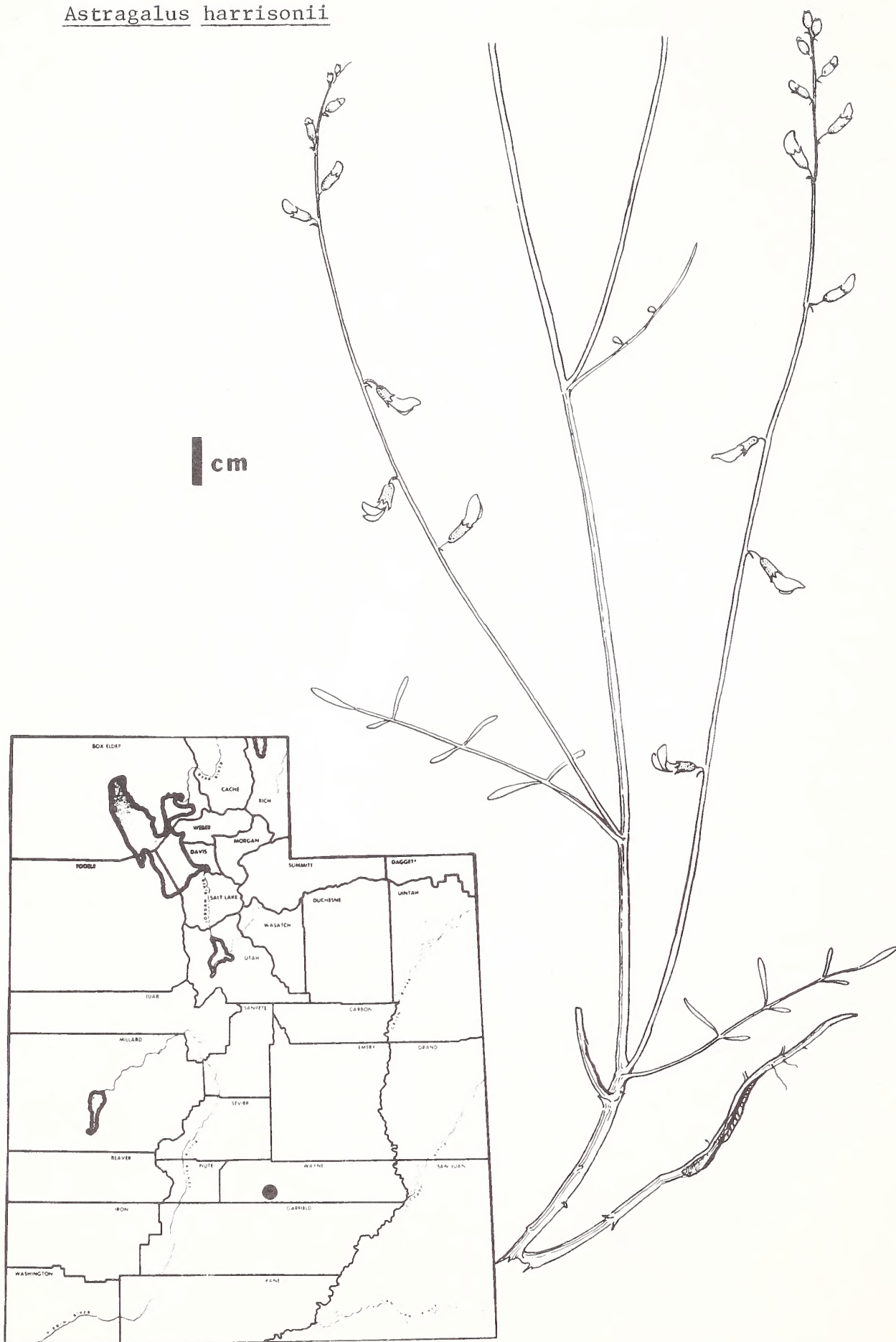
EXISTING OR POTENTIAL THREATS: A. harrisonii is being trampled by tourists.

LAND OWNERSHIP/MANAGEMENT: National Park Service

REMARKS: The only known population of this plant is located along the trail to Hickman Bridge.

RECOMMENDATIONS: This species should be regarded as endangered.

Astragalus harrisonii



SCIENTIFIC NAME: Astragalus henrimontanensis Welsh

FAMILY: Fabaceae

CITATION: Great Basin Naturalist 38: 281. 1978.

SYNONYMS: Astragalus stocksii Welsh (Great Basin Naturalist 34: 307. 1974. Not A. stocksii Benth. ex Bunge.)

STATUS: Recommended as threatened by S. L. Welsh, 1978

COMMON NAME: Dana milkvetch

KNOWN DISTRIBUTION: Garfield Co., Utah

HABITAT: Quaternary alluvium and colluvium over various geologic strata, gravelly loam soil; mixed ponderosa pine, pinyon, juniper and sagebrush community

ELEVATION: 7400 to 9200 feet (2257 to 2806 m)

DESCRIPTION: Perennial, acaulescent, 4-15 cm tall, from a branching caudex the branches clothed with coarse, persistent leaf bases; pubescence basifixed; stipules 3-8 mm long, all distinct; leaves 2.7-12.5 cm long; leaflets 7-17, 3-13 mm long, 1.5-6 mm wide, elliptic to oblanceolate, mucronate, acute to obtuse to truncate, strigose on both sides; peduncles 1.1-8 cm long; racemes 2-11 flowered; flowers ascending at anthesis; bracts 1.8-5 mm long; pedicels 1.3-2.5 mm long; flowers 15-23 mm long, ochroleucous, the wings and keel purple-tipped; pods ascending, sessile, lance-ovoid, slightly incurved, 22-35 mm long, 5-11 mm thick, somewhat dorsiventrally compressed, strigose, unilocular.

TAXONOMIC PROBLEMS: None

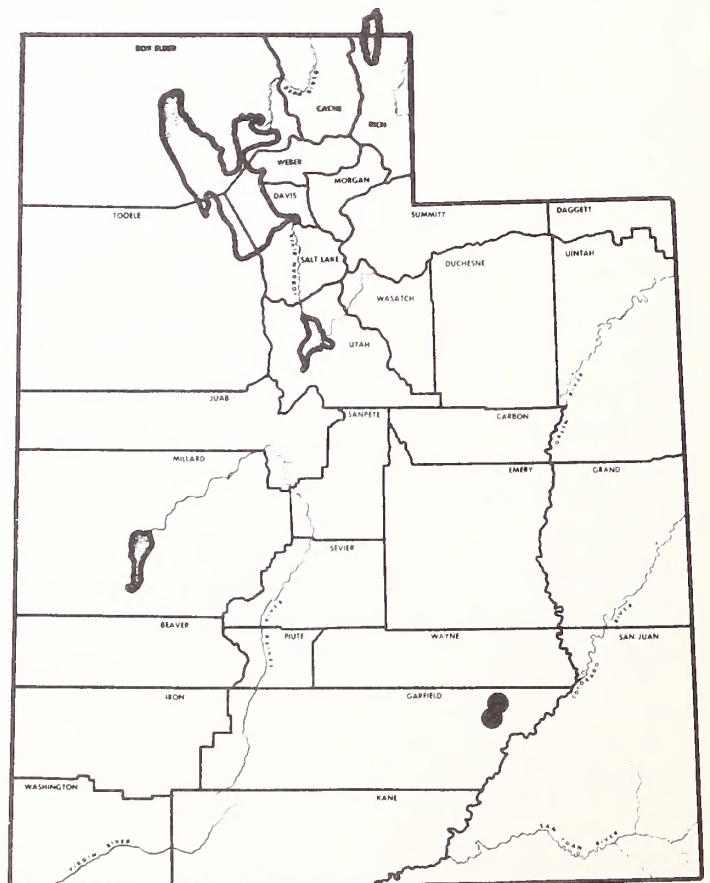
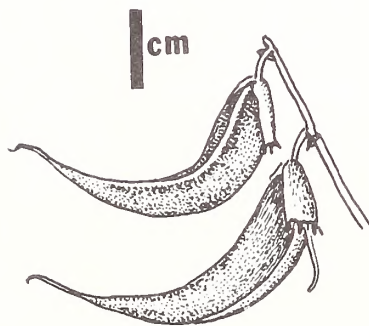
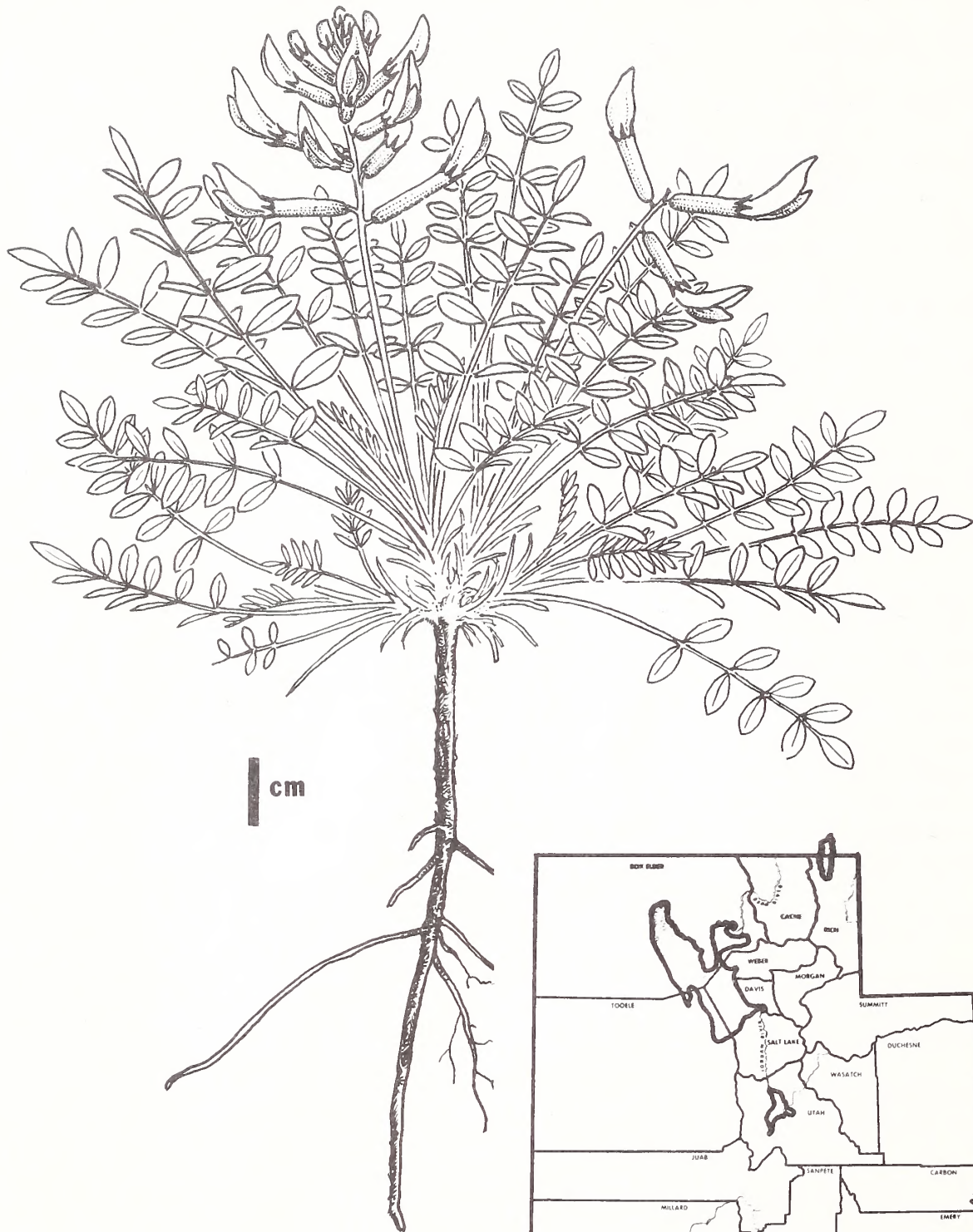
EXISTING OR POTENTIAL THREATS: Reclamation of vegetation on the Henry Mountains, chaining, windrowing, reseeding with introduced Old World plants are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; some private; potentially on Utah State land

REMARKS: This plant shows a combination of characters of two other species of Astragalus and can serve as an example for understanding of evolution within the genus.

RECOMMENDATIONS: The total extent of the populations of the Dana milkvetch should be surveyed and future development excluded from areas where this plant is located.

Astragalus henrimontanensis



SCIENTIFIC NAME: Astragalus iselyi Welsh

FAMILY: Fabaceae

CITATION: Great Basin Naturalist 34: 305. 1974.

SYNONYMS: None

STATUS: Proposed as endangered, Federal Register, June 16, 1976. Recommended as endangered, S. L. Welsh, 1978.

COMMON NAME: Isely milkvetch

KNOWN DISTRIBUTION: Grand and San Juan cos., Utah

HABITAT: Paradox and Morrison formations, gypsiferous and seleniferous soils; pinyon-juniper community.

ELEVATION: 5000 to 7600 feet (1525 to 2325)

DESCRIPTION: Perennial, erect, 8-25 cm tall from a taproot; leaves 3.2-8.5 cm long; leaflets (3) 5-13, 7-23 (37) mm long, 3-9 mm wide, elliptic to rhombic, acute to mucronate, strigose to glabrate on both sides; peduncles 1.7-10 cm long; racemes 7- to 20-flowered, the flowers spreading at anthesis, the axis 1-3 cm long in fruit; bracts 2-4.5 mm long; peduncles 0.8-2.5 mm long; bracteoles 0; calyx 6.7-10 mm long, the tube 5.5-6.3 mm long, cylindric, strigulose, the teeth 1.8-3.1 mm long, subulate; flowers 17-18 mm long, ochroleucous; pods 25-38 mm long, 10-15 mm thick, strigose, unilocular.

TAXONOMIC PROBLEMS: This plant is closely related to A. sabulosus M. E. Jones, which has flowers 27-34 mm long.

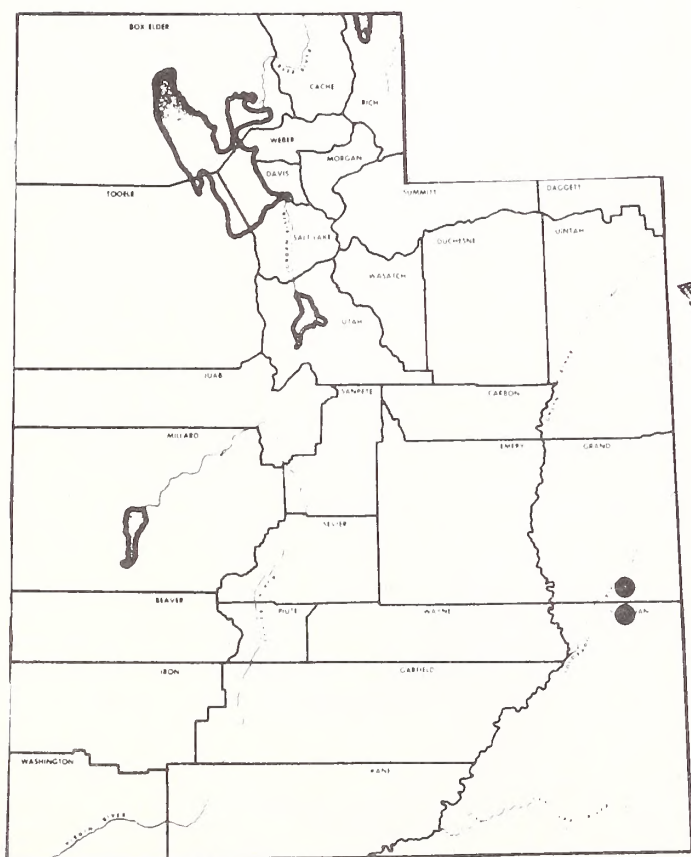
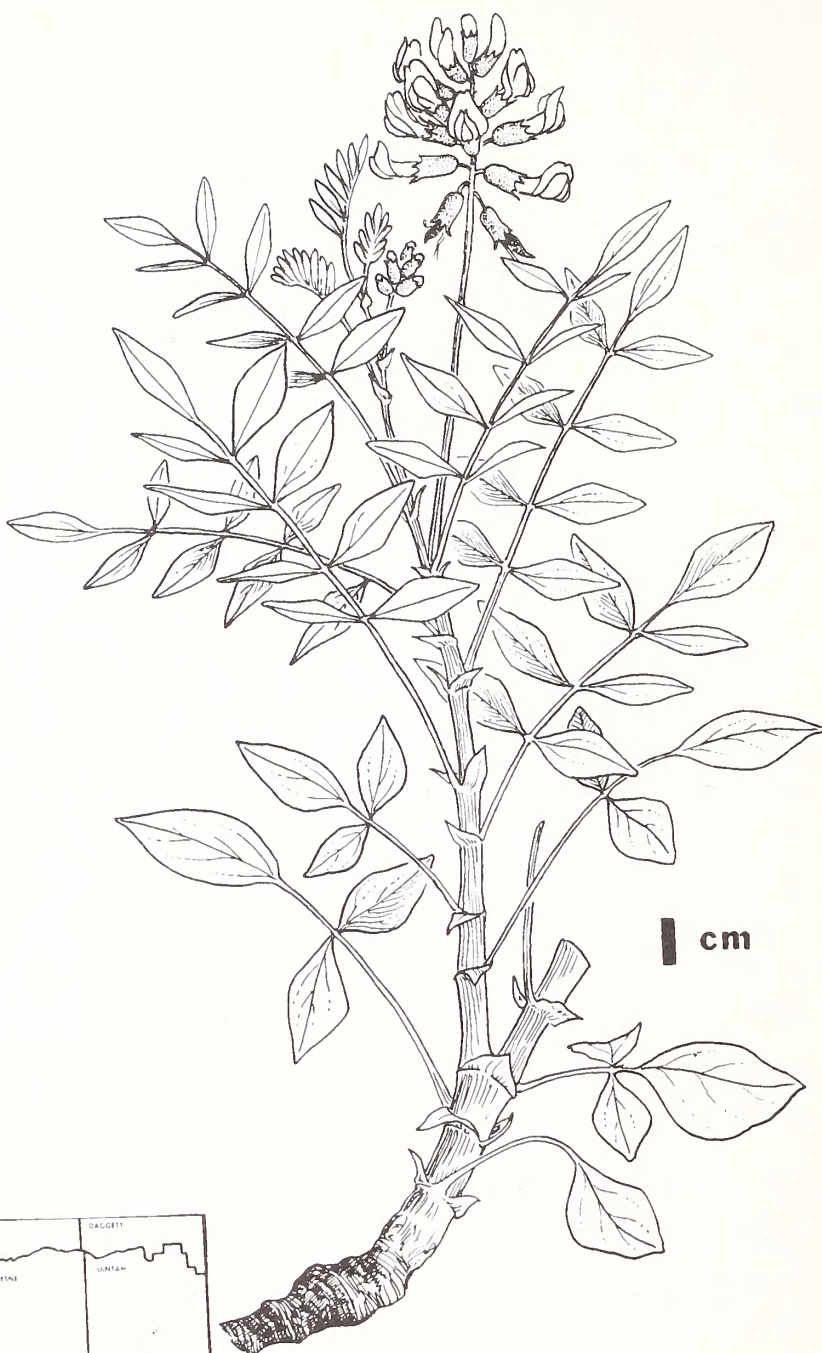
EXISTING OR POTENTIAL THREATS: Road improvement is proposed through the principal population on Brumley Ridge, San Juan County.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; U. S. Forest Service; private

REMARKS: The species is known from three populations, all within a distance of 20 miles along the western slope of the LaSal Mountains. Population numbers vary with fluctuations in climatic cycles. High numbers occur following two or more years of relatively abundant precipitation. This species is pivotal in understanding the origin of the iselyi-sabulosus complex.

RECOMMENDATIONS: The Isely milkvetch should be regarded as endangered.

Astragalus iselyi



SCIENTIFIC NAME: Astragalus lancearius A. Gray

FAMILY: Fabaceae

CITATION: Proc. Amer. Acad. Arts. 13: 370. 1878.

SYNONYMS: Homalobus lancearius (A. Gray) Rydb. (Bull. Torr. Club 40: 52. 1915.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Lancer milkvetch

KNOWN DISTRIBUTION: Kane and Washington cos., Utah

HABITAT: Moenkopi Formation, sandy clay barrens, gravelly hillsides and knolls; pinyon-juniper and mixed desert shrub community

ELEVATION: 2000 to 5500 feet (610 to 1678 m)

DESCRIPTION: Perennial, caulescent, rush-like, 15-55 cm tall, from a subterranean caudex; pubescence basifixed; stems erect or ascending; stipules 2-7 mm long, all distinct; leaves 1.5-10.5 cm long, some reduced to the rachis only, some with leaflets 3-7, 2-14 mm long, 0.5-1.5 mm wide, linear to oblong, strigose on both sides; calyx 3.5-5.2 mm long, about as long as broad, black strigose; flowers 8.8-11.5 mm long, pink-purple or purple tinged; pods deflexed, sessile or subsessile, body lance-oblong or lance-elliptic in outline, slightly curved or straight, 20-35 mm long, 5-9 mm wide, laterally compressed, glabrous to strigose, brown to straw colored, unilocular.

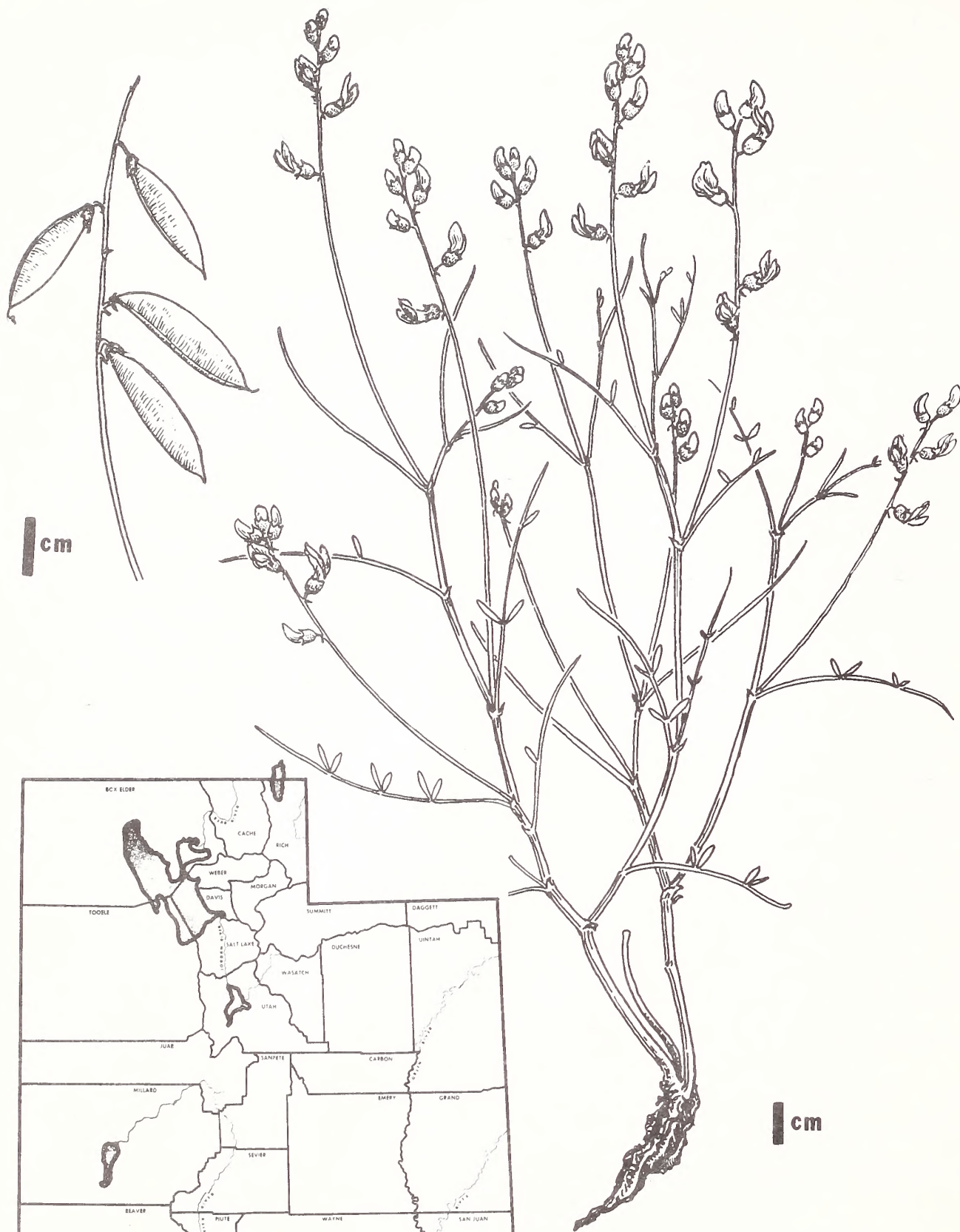
TAXONOMIC PROBLEMS: Closely related to A. episcopus, the lancer milkvetch has a calyx tube as broad as long or nearly so. A. episcopus has a calyx tube which is much longer than broad.

EXISTING OR POTENTIAL THREATS: Industrial development and land management practices are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: The near relationship of the lancer milkvetch to A. episcopus requires additional investigation.

RECOMMENDATIONS: This species should be regarded as threatened.



Astragalus lancearius

SCIENTIFIC NAME: Astragalus lentiginosus Dougl. var. ursinus (A. Gray)
Barneby

FAMILY: Fabaceae (Leguminosae)

CITATION: Leaflet. W. Bot. 4: 133. 1945.

SYNONYMS: Astragalus ursinus A. Gray (Proc. Amer. Acad. Art 13: 367.
1878.)

STATUS: Proposed as endangered, Federal Register, 16 June 1976. Recommended
as endangered by S. L. Welsh, 1978.

COMMON NAME: Bear Valley milkvetch

KNOWN DISTRIBUTION: Iron Co., Utah

HABITAT: Presumably sagebrush or pinyon-juniper community

ELEVATION: ca 7200 feet (2196 m)

DESCRIPTION: Perennial, caulescent from a caudex; pubescence basifixed;
stipules distinct; leaves 2.4-15 cm long; leaflets 9-23, 2-23 mm long,
elliptic to ovate or lanceolate, obtuse to rounded, pubescent to
glabrous on one or both sides; racemes 11-30 flowered, axis elongating
in fruit, 8-10 cm or more; calyx pubescent, 5-6 mm long; flowers
small, keel mostly 8.5-10.5 mm long, pink purple; pods ascending to
declined, not inflated, the body oblong to narrowly ellipsoid.

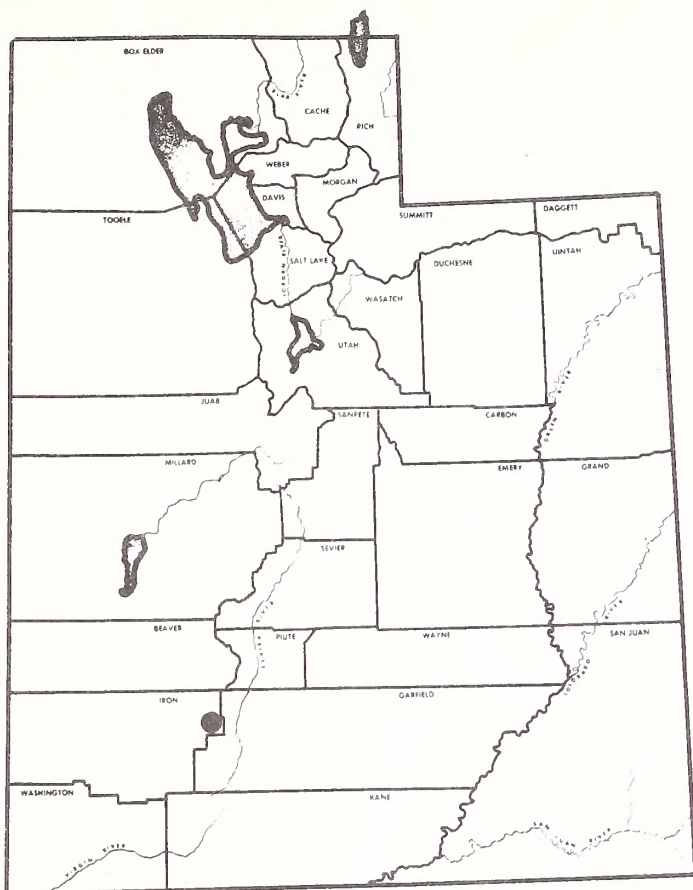
TAXONOMIC PROBLEMS: The relationships of var. ursinus are recondite.

EXISTING OR POTENTIAL THREATS: The region where this rare milkvetch was
originally collected has been modified by chaining in land reclamation
projects. Heavy grazing, mineral exploration and exploitation
(quarrying) are threats to this entity.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service; private

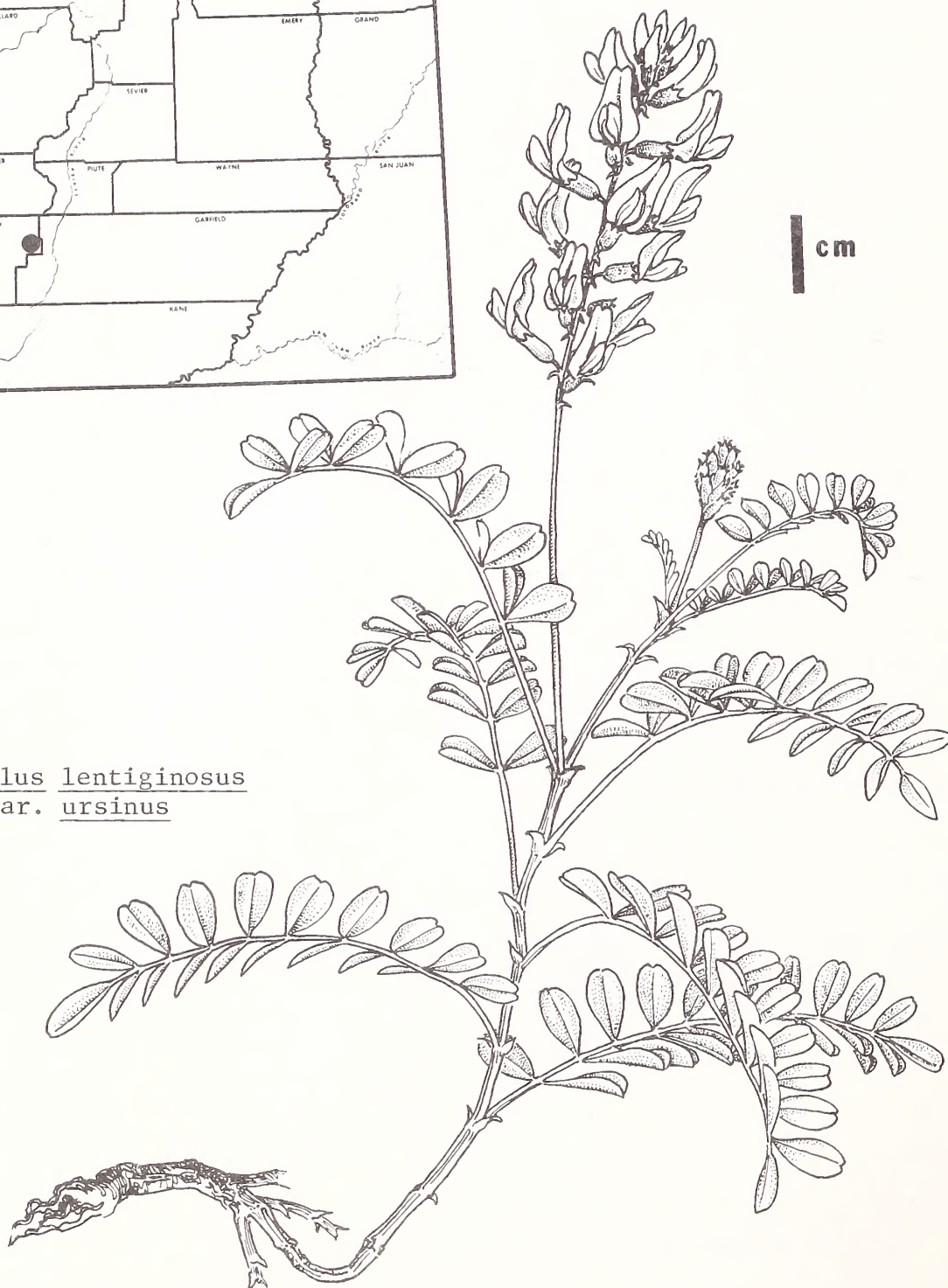
REMARKS: This milkvetch is important in understanding and evaluating the
genetic pathways within the Astragalus lentiginosus complex.

RECOMMENDATIONS: The area should be surveyed intensively for potential
survivors and if relocated they will require evaluation and probable
protection.



cm

Astragalus lentiginos
var. ursinus



SCIENTIFIC NAME: Astragalus limnocharis Barneby

FAMILY: Fabaceae

CITATION: Leaf1. W. Bot. 4: 236. 1946.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Navajo Lake milkvetch

KNOWN DISTRIBUTION: Iron and Kane cos., Utah

HABITAT: Wasatch Formation, lakeshore gravels and limestone breaks

ELEVATION: 8800 to 11,200 feet (2670 to 3400 m)

DESCRIPTION: Perennial, subacaulescent, 1-5 cm tall, arising from a branching caudex; pubescence basifixed; stems prostrate to erect; stipules 2-4 mm long, all connate-sheathing; leaves 1.5-7 cm long; leaflets 7-13, 2-9 mm long, 1-2 mm wide, lanceolate to elliptic or oblong, strigose beneath, long-ciliate on the involute margin, glabrous above; racemes 2- to 10-flowered, spreading to declined at anthesis; calyx 2.8-3.6 mm long, strigose; flowers 6.2-7.5 mm long, ochroleucous, concolorous; pods spreading sessile, ovoid, bladdery-inflated, 9-18 mm long, mottled, strigose, unilocular.

TAXONOMIC PROBLEMS: The nearest ally of A. limnocharis is A. jejunos, known in Utah only from Rich County.

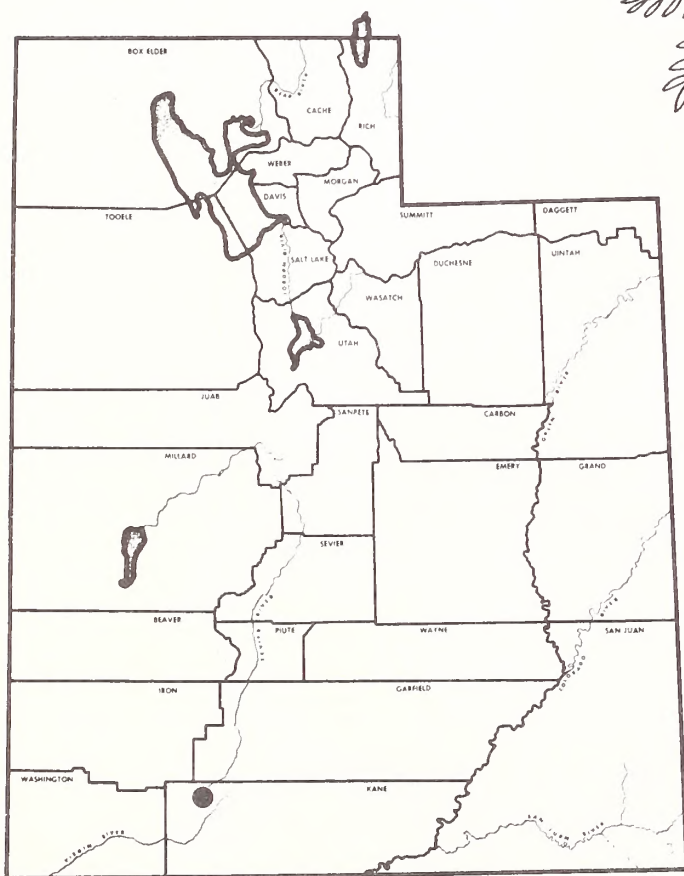
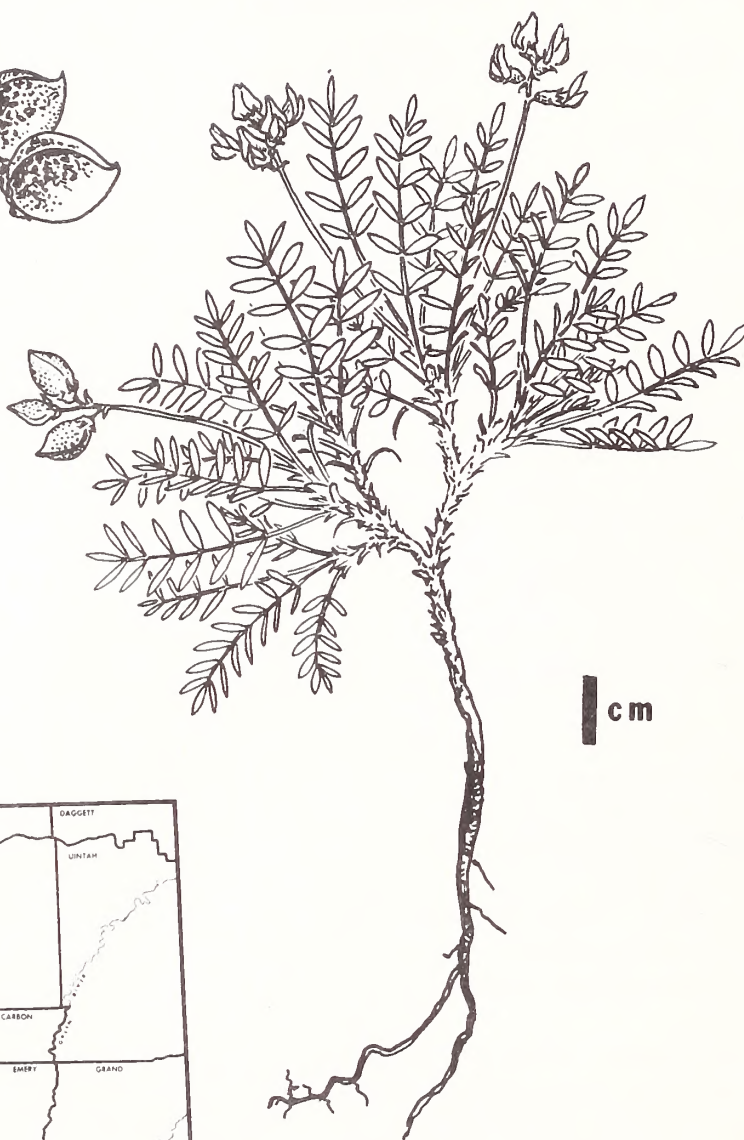
EXISTING OR POTENTIAL THREATS: Land management policy changes and industrial development are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service; private

REMARKS: This "lake beauty" has a principal locality on the beach at Navajo Lake where it is dispersed by wave action. Plants can be found below the high water line as the lake recedes.

RECOMMENDATIONS: Some part of the beach at Navajo Lake should receive protection from public use.

Astragalus limnocharis



SCIENTIFIC NAME: Astragalus malacoides Barneby

FAMILY: Fabaceae

CITATION: Mem. New York Bot. Gard. 13: 500. 1964.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Kaiparowits milkvetch

KNOWN DISTRIBUTION: Garfield and Kane cos., Utah

HABITAT: Straight Cliffs, Wahweap, Kaiparowits, and Moenkopi formations, clay or silty soils; juniper-pinyon and mixed desert shrub communities.

ELEVATION: 5300 to 7500 feet (1600 to 2330 m)

DESCRIPTION: Perennial, caulescent, 7-25 cm tall, from a subterranean caudex, pubescent basifixed; stems decumbent, prostrate to ascending; stipules 2-7 mm long, distinct leaves, 4.5-14 cm long; leaflets 15-29, 3-25 mm long, 2-12 mm wide, obovate to oblong or elliptic, obtuse to emarginate, hirtellous beneath, glabrous above; peduncles 4-12 cm long; racemes 10- to 24-flowered; flowers ascending-spreading at anthesis; bracts 3-5 mm long, pedicels 1-2.5 mm long; calyx 10-15 mm long, cylindric, hirsutulous; flowers 16-22 mm long, pink-purple; pods declined to ascending, short stipitate, body oblong, curved, 25-40 mm long, 5-8 mm wide, laterally compressed, hirsutulous, bilocular.

TAXONOMIC PROBLEMS: None

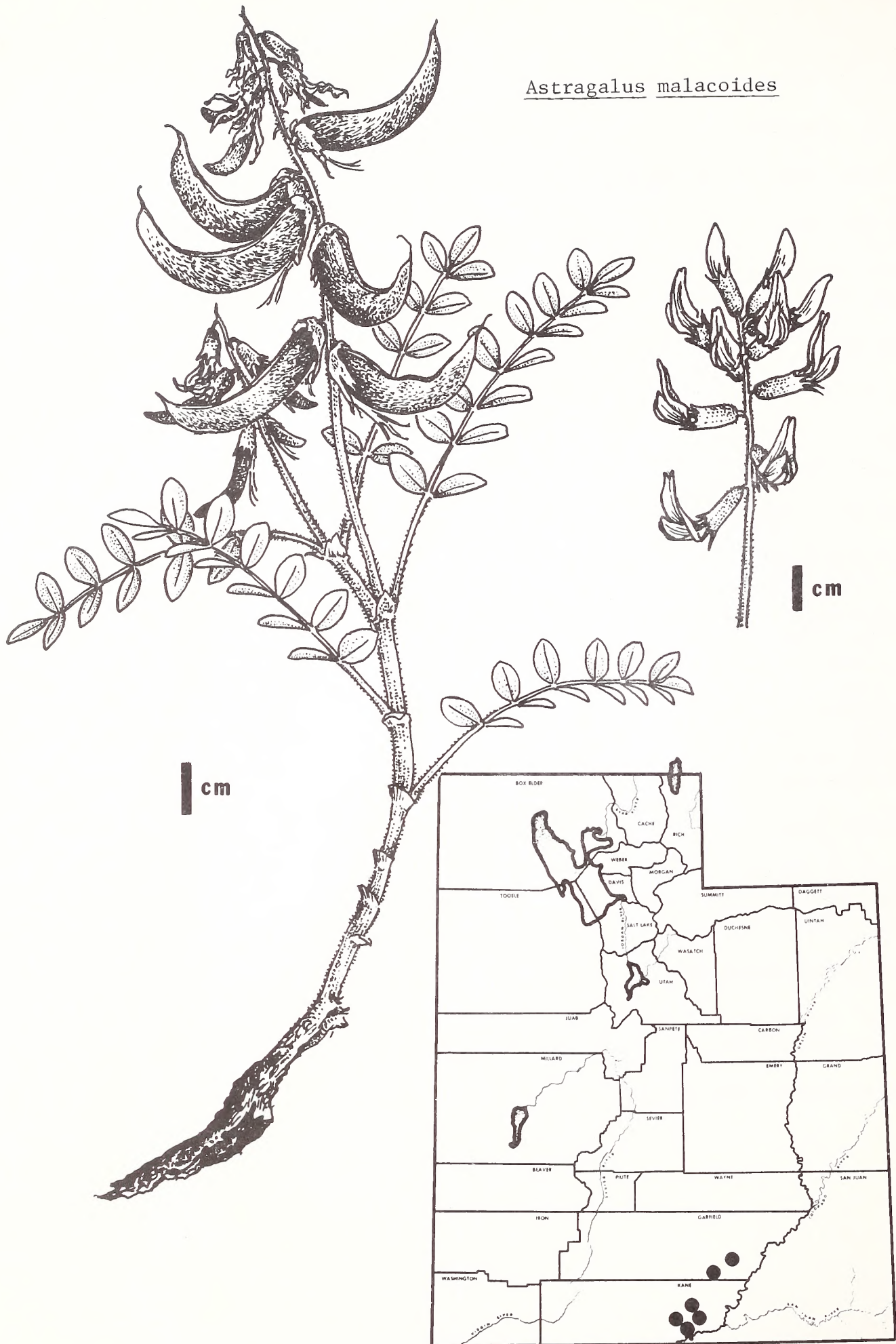
EXISTING OR POTENTIAL THREATS: Potential industrial development, changes in the land management policies, and off-road vehicles are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: There are few known populations of A. malacoides in the area of Straight Cliffs, Four Mile Bench and Circle Cliffs.

RECOMMENDATIONS: The Kaiparowits milkvetch should be downgraded to threatened.

Astragalus malacoides



SCIENTIFIC NAME: Astragalus montii Welsh

FAMILY: Fabaceae

CITATION: Great Basin Naturalist 38: 11. 1978.

SYNONYMS: None

STATUS: Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Heliotrope milkvetch

KNOWN DISTRIBUTION: Sanpete Co., Utah

HABITAT: Flagstaff Limestone Formation

ELEVATION: 11000 feet (3350 m)

DESCRIPTION: Perennial, subcaulescent, 1-5 cm tall, arising from a branched caudex; pubescence basifixed, stems ascending to erect; stipules 2-4 mm long, all connate-sheathing leaves, 1.3-4.8 cm long; leaflets 5-13, 2-8 mm long, lanceolate to oblong or elliptic, strigose beneath, glabrous above, margin involute but not ciliate, peduncles 0.8-4.5 cm long, reclining in fruit; racemes 2- to 8-flowered; flowers ascending to spreading at anthesis; calyx 3.3-4 mm long, campanulate, strigose; flowers 7.2-8 mm long, pink-purple, the wing tips white; pods spreading, sessile, ovoid, bladdery-inflated, 11-18 mm long, mottled, strigose, unilocular, ovules 10.

TAXONOMIC PROBLEMS: A. montii is related to A. limnocharis, but differs in that the flowers are purple-pink with white tips on the wings and the leaf margins are strigose but not ciliate.

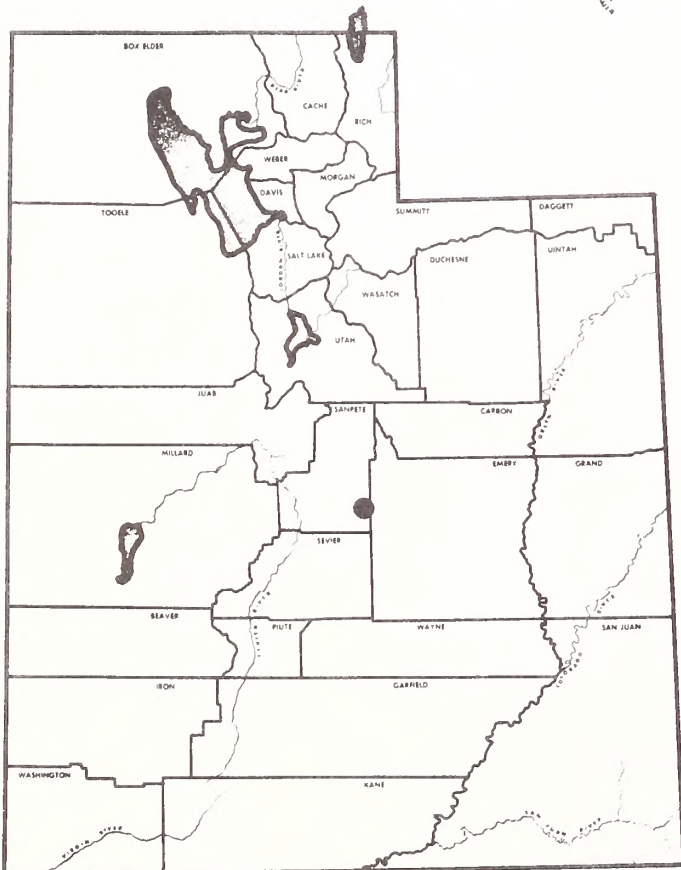
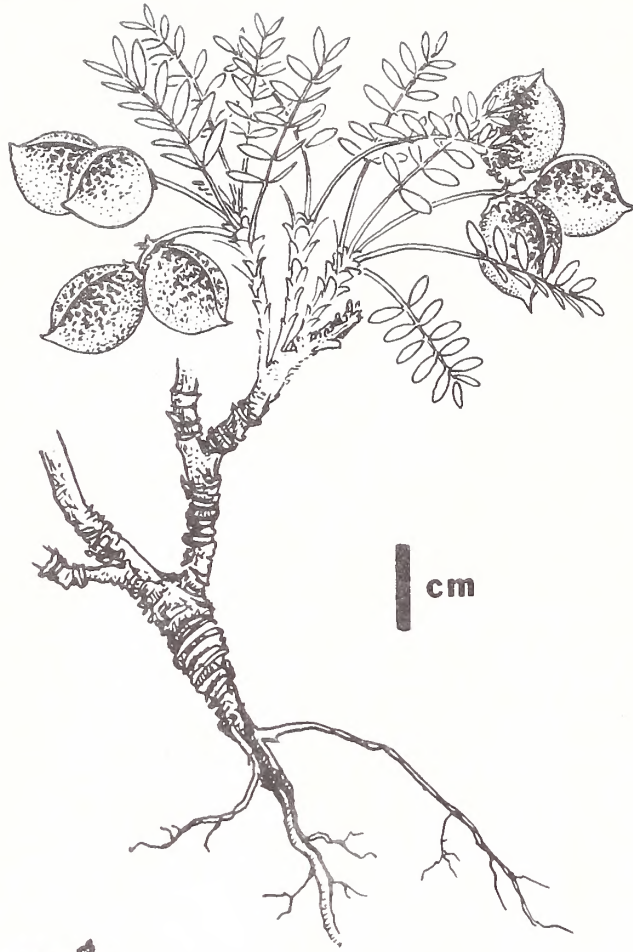
EXISTING OR POTENTIAL THREATS: Potential utilization of the limestone for industrial purposes threaten this plant.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

REMARKS: The Heliotrope milkvetch is known only from one locality on the Wasatch Plateau.

RECOMMENDATIONS: This species should be regarded as endangered.

Astragalus montii



SCIENTIFIC NAME: Astragalus monumentalis Barneby

FAMILY: Fabaceae

CITATION: Leaflet. W. Bot. 7: 35. 1953.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Monument milkvetch

KNOWN DISTRIBUTION: Garfield and San Juan cos., Utah

HABITAT: Cedar Mesa Sandstone Formation, crevices in rim rock and other slickrock sites; pinyon, juniper and warm desert shrub communities

ELEVATION: 4000 to 6100 feet (1230 to 1870 m)

DESCRIPTION: Perennial acaulescent or subacaulescent, 3-18 cm tall from a branching caudex; pubescence basifixed or shortly malpighian; stems 1-6 cm long, ascending, the internodes commonly concealed by stipules; stipules 2-4 mm long, all distinct; leaves 1.5-8 cm long; leaflets elliptic or oblanceolate, strigulose beneath, glabrous or glabrate above; peduncles 1-12 cm long; racemes 3-9 flowered, the flowers ascending at anthesis, the axis 0.5-7 cm long in fruit; bracts 1.5-5 mm long; pedicels 0.8-2.2 mm long; calyx 3.6-4.5 mm long, campanulate, strigose purplish; flowers 8-9 mm long, pink purple; pods ascending, sessile or nearly so, narrowly oblong to lanceolate in outline, 12-21 mm long, straight or curved, triangular in cross section, often mottled, bilocular.

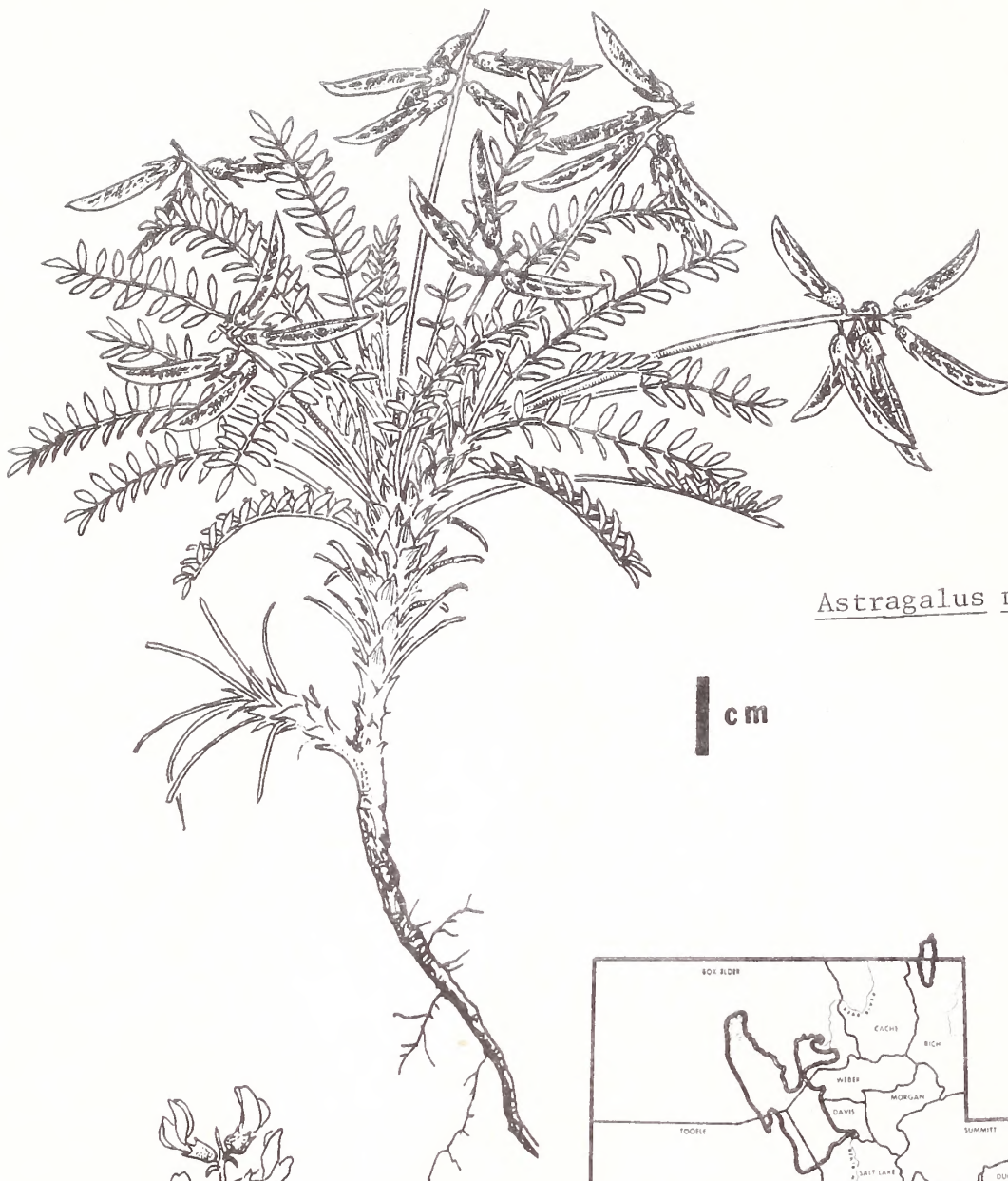
TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: The impact of highways and attendant use and mineral exploration are threats to this milkvetch.

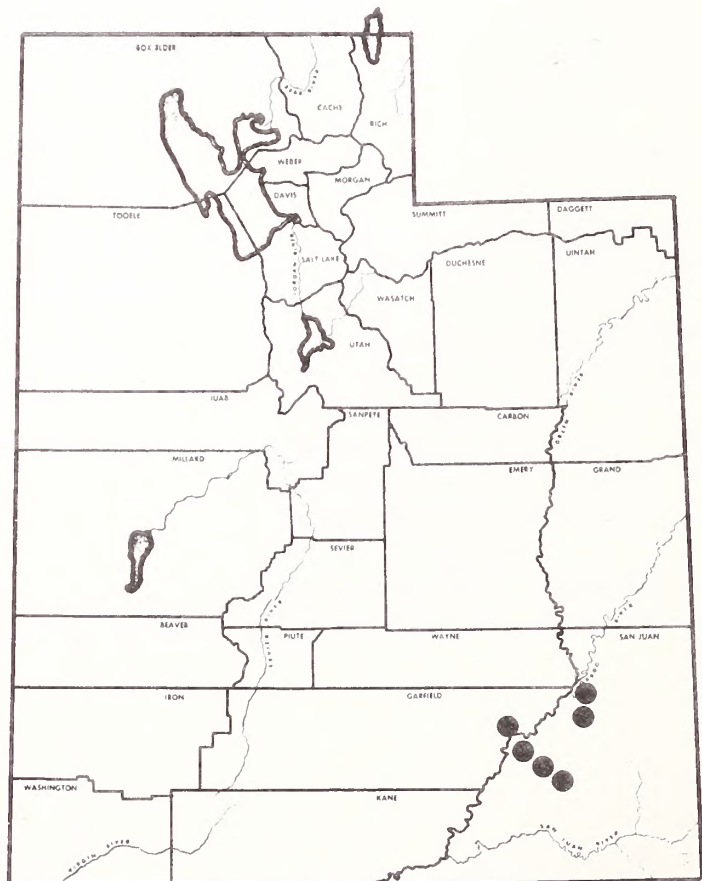
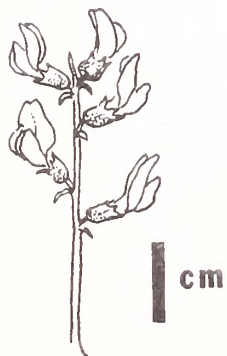
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State; National Park Service

REMARKS: This low growing milkvetch occupies crevices and sandy depressions in rim rock where other vegetation is sparse. It is important ecologically in stabilizing soils.

RECOMMENDATIONS: Exclude from existing population areas those activities which result in destruction of vegetation.



Astragalus monumentalis



SCIENTIFIC NAME: Astragalus perianus Barneby

FAMILY: Fabaceae

CITATION: Mem. New York Bot. Gard. 13: 973. 1964.

SYNONYMS: None

STATUS: Reviewed as possibly extinct, Federal Register, 1 July 1975.
Proposed as endangered, Federal Register, 16 June 1976. Officially
listed as threatened, Federal Register, 26 April 1978. Recommended as
threatened by S. L. Welsh.

COMMON NAME: Rydberg milkvetch

KNOWN DISTRIBUTION: Garfield and Piute cos., Utah

HABITAT: Tertiary igneous gravels, rocky clay soil; mountain woodlands
or barrens, alpine meadows

ELEVATION: 10,000 to 11,500 feet (3050 to 3508 m)

DESCRIPTION: Perennial, short-caulescent, 1-6 cm tall, from a shallowly
subterranean, branching caudex; pubescence basifixed; stems prostrate,
stipules small, at least some connate sheathing; leaves 1-3 cm long;
leaflets 7-19, 1-5 mm long, oval to obovate, retuse, strigulose on
both sides, or glabrate above; peduncles 0.3-2.2 cm long; racemes 2-
to 6-flowered, the flowers spreading at anthesis; calyx 2.5-4.2 mm
long, campanulate, pilosulous, purplish; flowers 6.8-8.5 mm long,
whitish, faintly suffused with pink or purple; pods ascending to
declined, sessile, bladdery-inflated, ovoid, 10-23 mm long, strigose.
purple mottled, unilocular.

TAXONOMIC PROBLEMS: The Rydberg milkvetch resembles A. serpens but is
distinguished by the connate stipules and subterranean caudex.

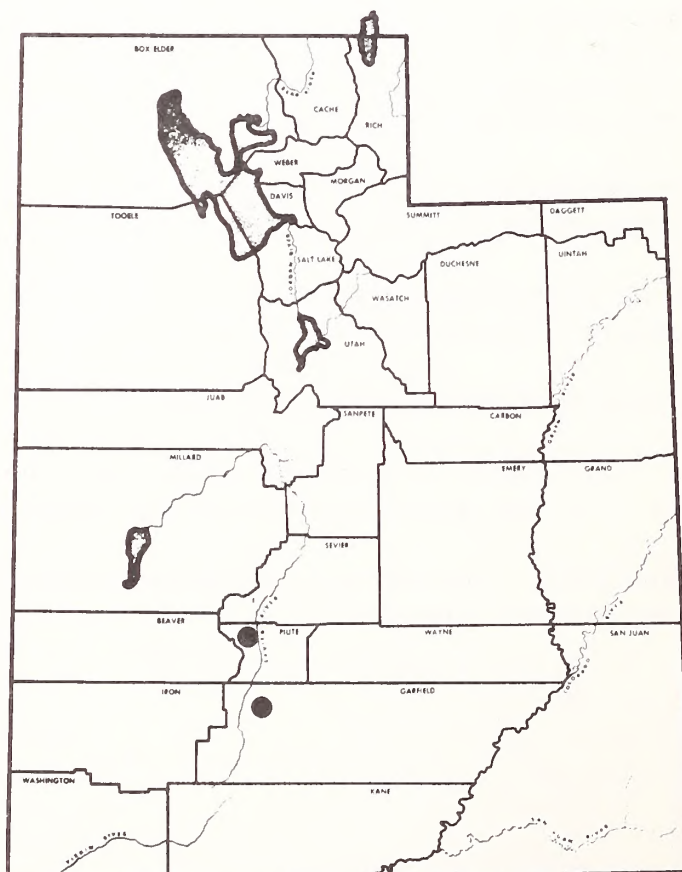
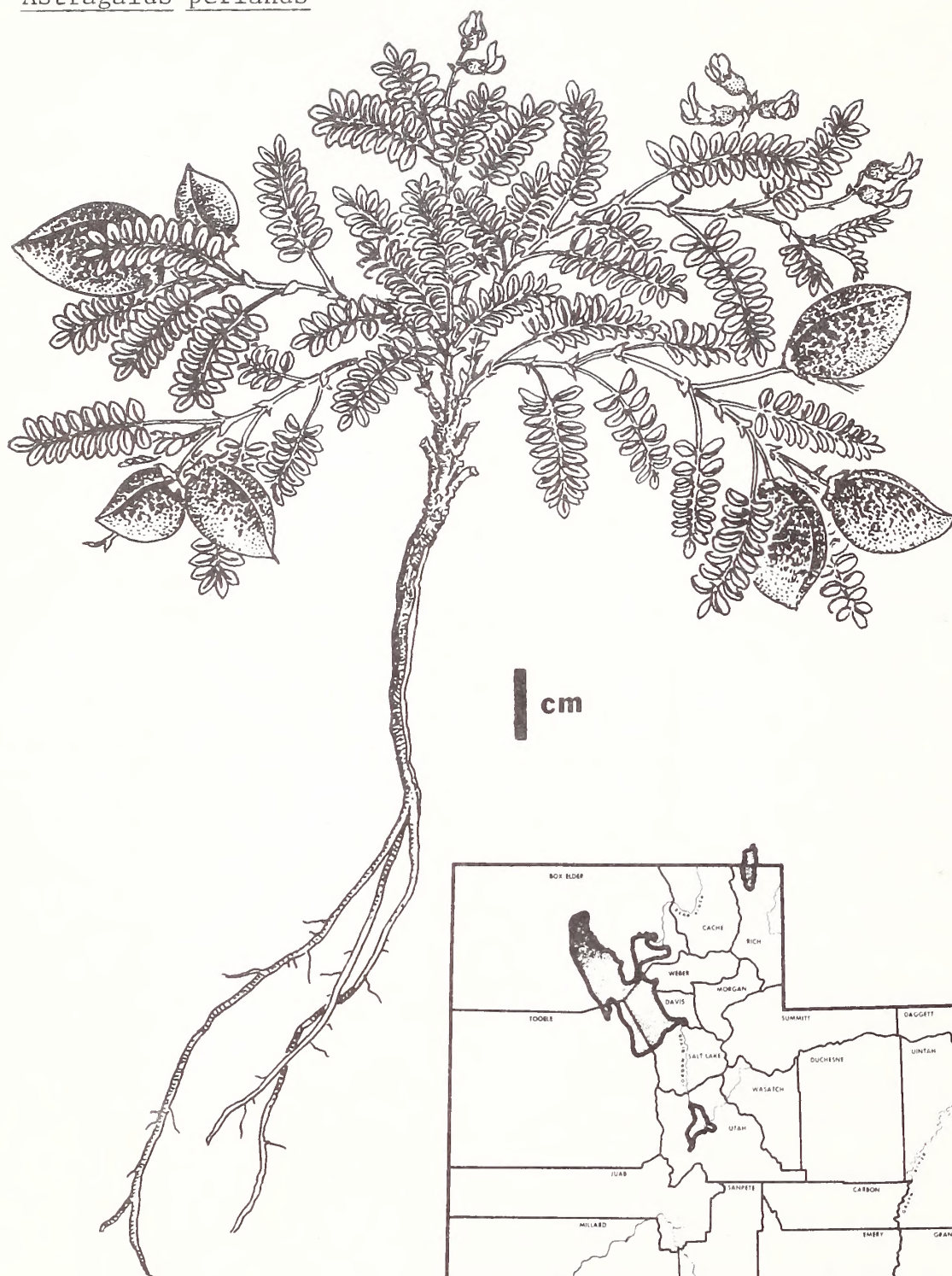
EXISTING OR POTENTIAL THREATS: Mineral exploration and road building are
possible threats to this plant.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

REMARKS: This beautiful little plant is a high elevation endemic and known
only from two disjunct populations highly restricted in area.

RECOMMENDATIONS: The known plant populations must receive consideration
in management practices.

Astragalus perianus



SCIENTIFIC NAME: Astragalus raphaelensis M. E. Jones

FAMILY: Fabaceae

CITATION: Rev. Astrag. 146. 1923.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: San Rafael milkvetch

KNOWN DISTRIBUTION: Emery Co., Utah

HABITAT: Buckhorn Conglomerate, Morrison, Summerville, Chinle and Moenkopi formations; salt desert shrub and scattered juniper community

ELEVATION: 4500 to 5300 feet (1373 to 1617 m)

DESCRIPTION: Perennial, caulescent, rush-like, 36-62 cm tall, from a branching caudex; pubescence basifixed; stems erect or ascending, arranged in clumps; at least some stipules connate sheathing; most leaves simple, or some with 3-5 leaflets, linear to oblong, acute, glabrate beneath, glabrous above; peduncles 11-27 cm long; racemes loosely 5-12 flowered; flowers 19-26 mm long, pale pink purple or bi-colored; pods deflexed, sessile, oblong-elliptic, glabrous, unilocular; ovules 18-20.

TAXONOMIC PROBLEMS: This milkvetch is related to A. saurinus but differs in the more rush-like nature of its growth, the paler flowers and in proportions of the floral parts.

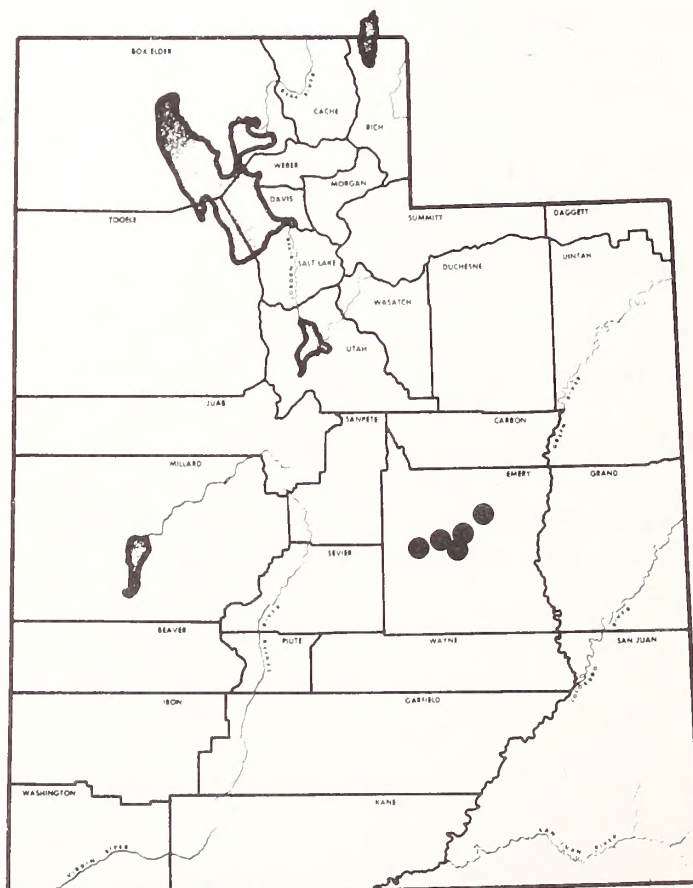
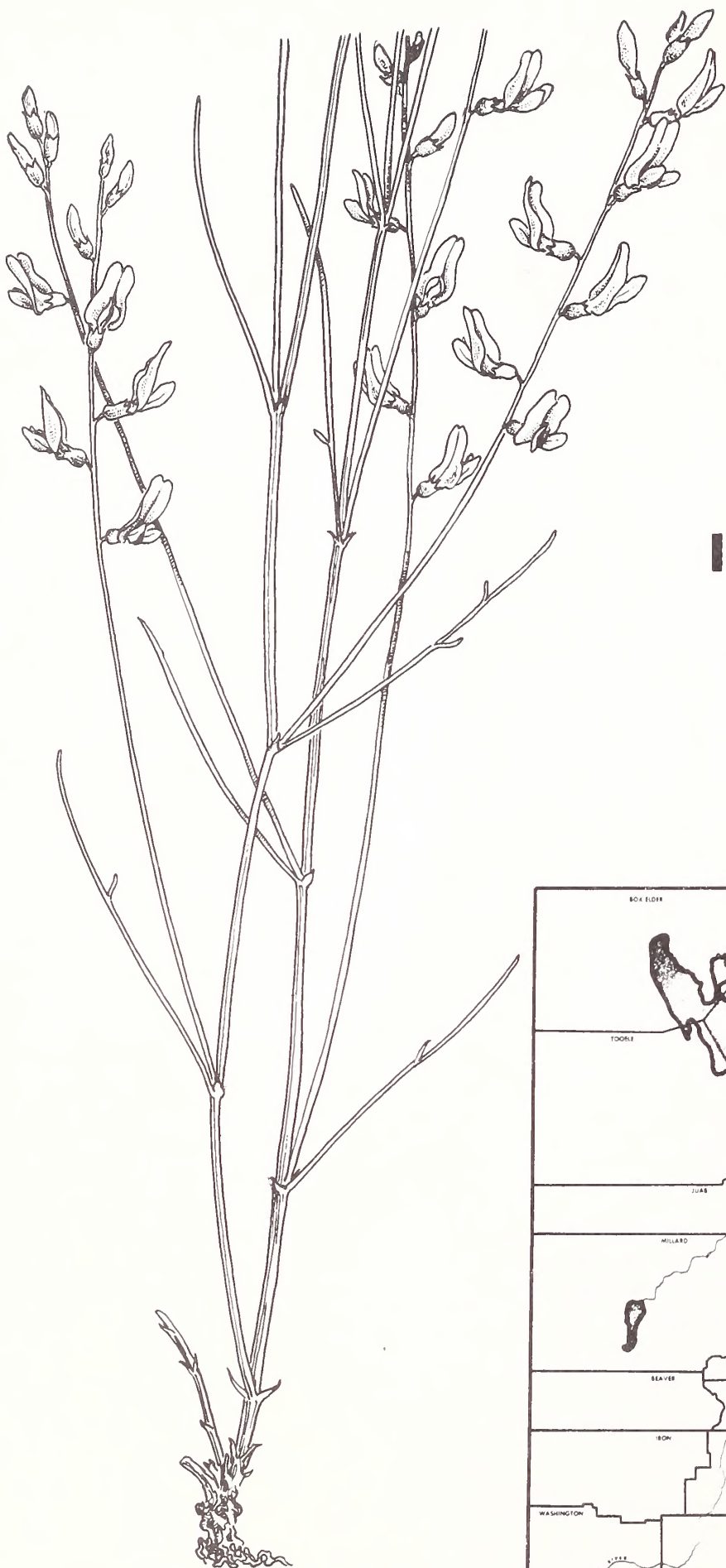
EXISTING OR POTENTIAL THREATS: Existing roads that pass through the populations, off-road vehicles and litter are threats to this plant.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: The plant is a primary indicator of selenium and probably requires selenium in its metabolism.

RECOMMENDATIONS: Exclude off-road vehicle use of critical habitat areas; use care in road realignment; survey all sectors where land use applications indicate surface modification and allow modifications only where the species is not present.

Astragalus rafaensis



SCIENTIFIC NAME: Astragalus sabulosus M. E. Jones

FAMILY: Fabaceae

CITATION: Zoe 2: 239. 1891.

SYNONYMS: Jonesiella sabulosa (M. E. Jones) Rydb. (N. Amer. Fl. 24:
402. 1929.)

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Cisco milkvetch

KNOWN DISTRIBUTION: Grand Co., Utah

HABITAT: Mancos Shale Formation, hills and knolls, saline clays and silts;
salt desert shrub community

ELEVATION: 4200 to 5200 feet (1281 to 1586 m)

DESCRIPTION: Perennial, caulescent, 13-38 cm tall, from a woody caudex; pubescence basifixed; stems decumbent to ascending or erect, forming clumps; stipules 4-9 mm long, all distinct; leaves 3-10.5 cm long; leaflets 5-11, 6-25 mm long, 3-17 mm wide, rhombic-oval to obovate or elliptic, mucronate, strigose to glabrous on both sides; peduncles 3.5-7 cm long; racemes 4 to 10 flowered, the flowers ascending-spreading at anthesis; bracts 2-6 mm long; pedicels 2-5 mm long; calyx 15-17.5 mm long, cylindric, strigulose, subulate; flowers 15-34 mm long, whitish to ochroleucous, fading yellow; pods spreading to declined, subsessile, inflated, cylindroid, 20-48 mm long, stiffly papery to leathery, strigose, unilocular; ovules 55-59.

TAXONOMIC PROBLEMS: Large showy yellowish flowers distinguish the Cisco milkvetch from A. iselyi, a near relative.

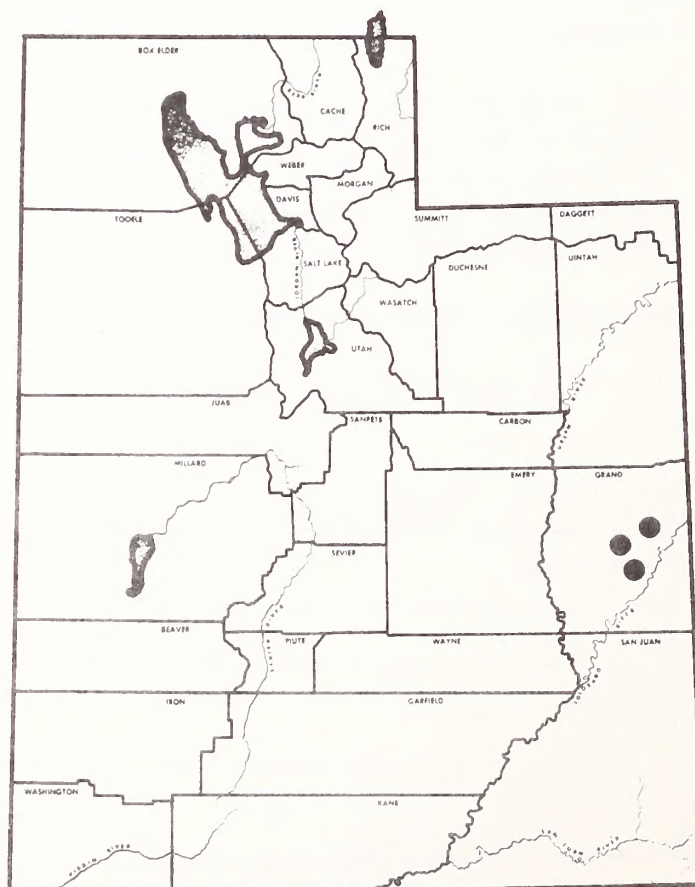
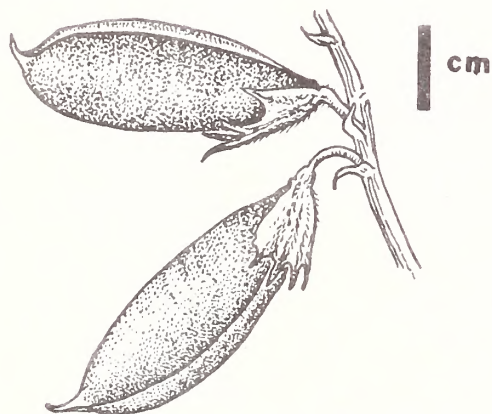
EXISTING OR POTENTIAL THREATS: Highways penetrating the known populations and off-road vehicles threaten this plant.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: This plant is a primary selenophyte with special cultural requirements.

RECOMMENDATIONS: Surveys should be made to determine the total extent of this species. Populations should be monitored and surface disturbance disallowed.

Astragalus sabulosus



SCIENTIFIC NAME: Astragalus saurinus Barneby

FAMILY: Fabaceae

CITATION: Leaf1. W. Bot. 8: 17. 1956.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Dinosaur milkvetch

KNOWN DISTRIBUTION: Uintah Co., Utah

HABITAT: Duchesne River and Moenkopi formations, alluvium, sandy soil; mixed desert shrub and scattered juniper community

ELEVATION: 1600 to 5600 feet (590 to 1708 m)

DESCRIPTION: Perennial, caulescent, rush-like, 25-45 cm tall, from a shallowly subterranean caudex; pubescence basifixed; stems erect or ascending, arranged in clumps; stipules 1.2-7 mm long; leaves 2.5-9 cm long, uppermost usually simple, others with leaflets 3-9, mostly 10-28 mm long, 15-2 mm, linear to linear-elliptic, obtuse, strigose on both surfaces, terminal leaflet confluent with the rachis; calyx 6.4-9.6 mm long; flowers 18-22 mm long, bicolored pink-purple with white wing tips, rarely all white; pods deflexed sessile, 15-35 mm long, straight or curved, laterally compressed, strigose to glabrate, unilocular.

TAXONOMIC PROBLEMS: A. saurinus has two near congeners, A. toanus of far western Utah, and A. rafaelensis of the San Rafael Swell.

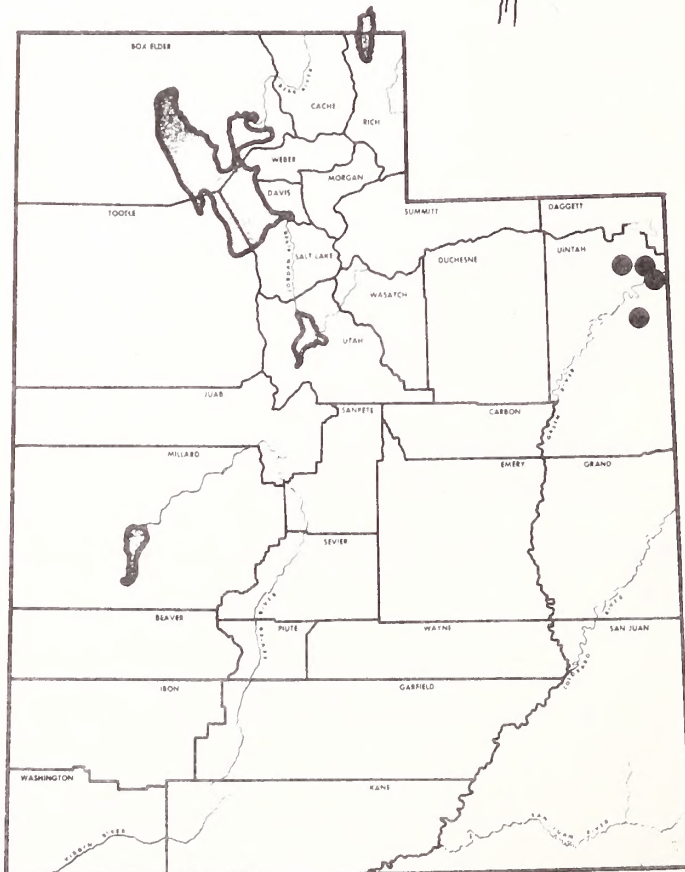
EXISTING OR POTENTIAL THREATS: Industrial development and mineral exploration threaten this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State; National Park Service

REMARKS: A. saurinus is an Uintah Basin endemic; it is known from only a small number of populations.

RECOMMENDATIONS: The Dinosaur milkvetch should be considered as threatened.

Astragalus saurinus



SCIENTIFIC NAME: Astragalus striatiflorus M. E. Jones

FAMILY: Fabaceae

CITATION: Proc. Calif. Acad. Sci. II. 5: 643. 1895.

SYNONYMS: None

STATUS: Proposed as endangered, Federal Register, 16 June 1976.

Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Escarpment milkvetch

KNOWN DISTRIBUTION: Kane and Washington cos., Utah; Coconino Co., Arizona

HABITAT: Entrada and Navajo Sandstone formations blow sand, interdune valleys, sandy depressions on ledges, bars, and terraces in stream channels.

ELEVATION: 5000 to 6250 feet (1530 to 1900 m)

DESCRIPTION: Perennial, subacaulescent to short caulescent, 1.5-6 cm tall, radiating from a branching subterranean caudex, pubescence basifixed; stems 0-5 cm long, only the tips above the sand; stipules 2-4 mm long, all connate-sheathing; leaves 1-4 cm long; leaflets 5-13, 1-7 mm long, 0.8-2.5 mm wide, ovate to obovate or oblanceolate, obtuse, mucronate, or emarginate pilosulous; racemes 2- to 5-flowered; calyx 5.5-7 mm long; hirsutulous flowers, 9-12 mm long, pink-purple or whitish commonly suffused with purple, keel tip purple; pods spreading, sessile, body bladdery inflated, ellipsoid, 12-18 mm long, mottled, spreading hairy, bilocular.

TAXONOMIC PROBLEMS: Very similiar to A. perianus, A. striatiflorus is distinguished by the attenuate keel tip, protruding stigma and inflated bilocular pods as well as edaphic requirements and elevation.

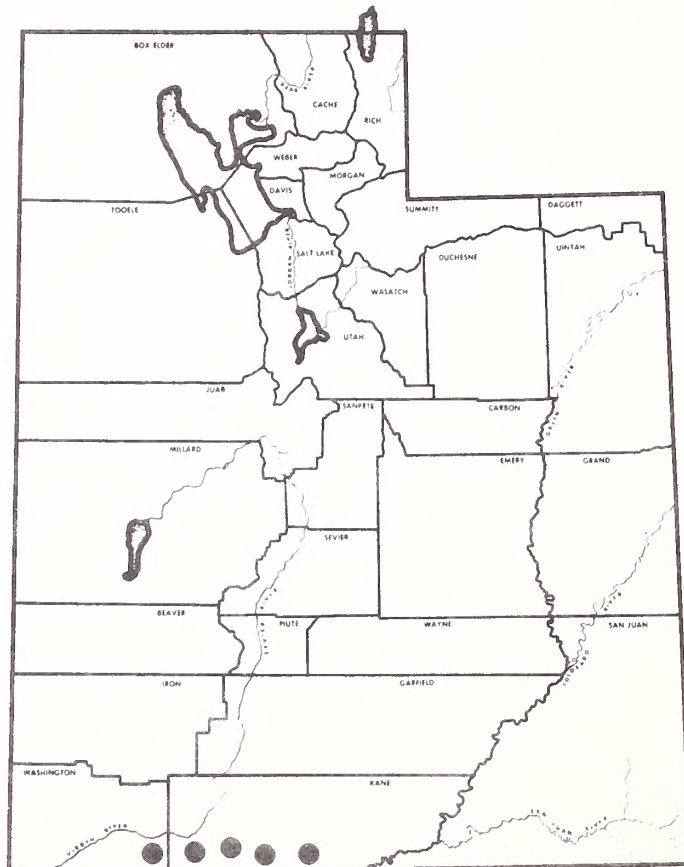
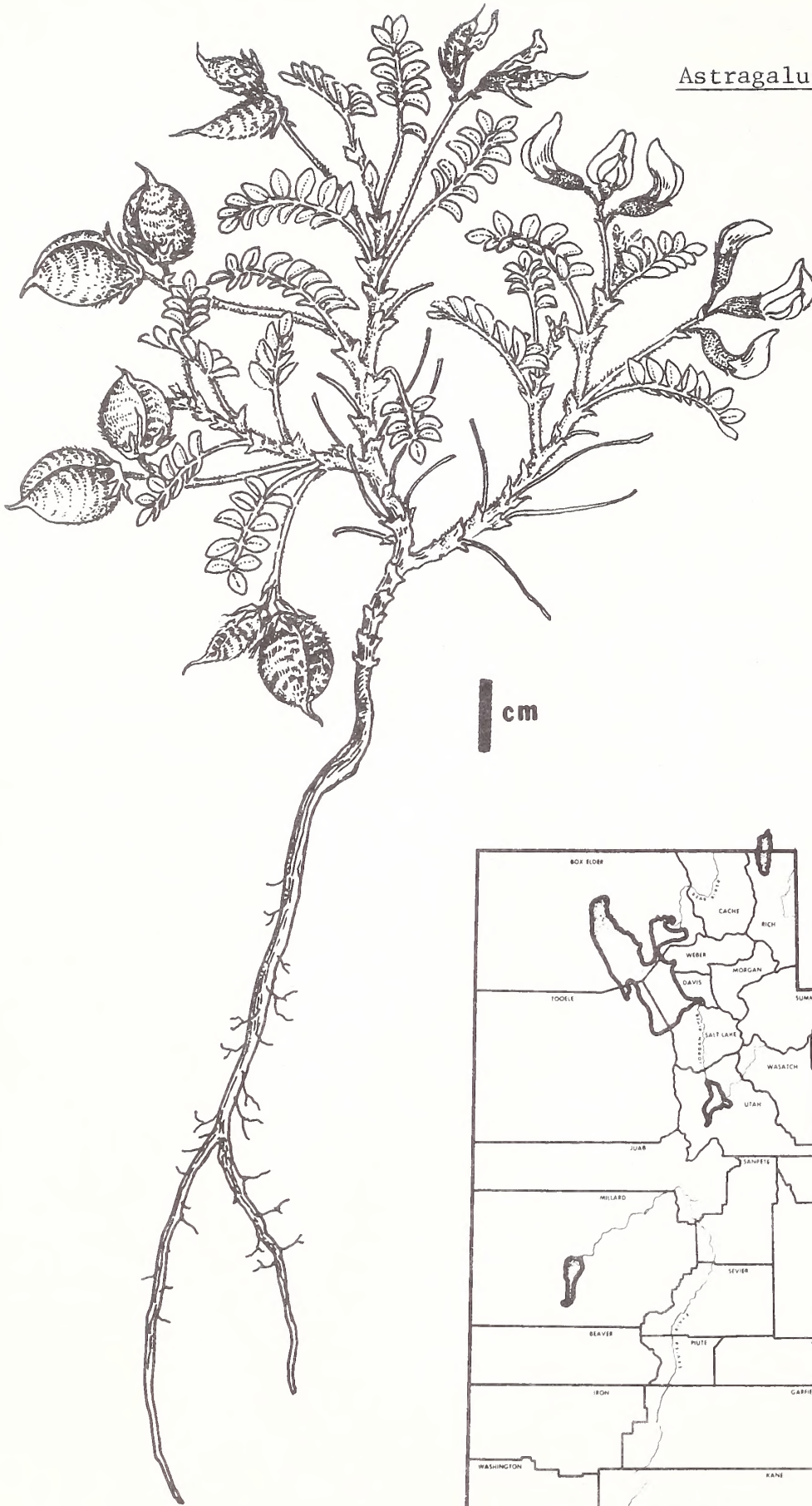
EXISTING OR POTENTIAL THREATS: Recreation and off-road vehicles in the Coral Pink Dunes region are likely to eliminate the plant in this area.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: This remarkable sand-dwelling milkvetch occurs in interdune valleys and along sandy terraces in valleys.

RECOMMENDATIONS: Because of its rather wide distribution, the Escarpment milkvetch should be regarded as threatened.

Astragalus striatiflorus



SCIENTIFIC NAME: Dalea epica Welsh

FAMILY: Fabaceae

CITATION: Great Basin Naturalist 31: 90. 1971.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Hole-in-the-Rock prairie clover

KNOWN DISTRIBUTION: San Juan Co., Utah

HABITAT: Navajo Sandstone Formation, bedrock and sand dunes

ELEVATION: 5000 feet (1530 m)

DESCRIPTION: Stems ascending to erect, 20-42 cm tall, from a subterranean woody caudex, strigose to pilose; stipules 2-4 mm long, persistent; leaves 1.5-3.8 cm long; leaflets 3-5, 5-19 mm long, 2-9 mm wide, flat or folded, oblanceolate to elliptic, acute, lustrous, strigose or pilose, glandular beneath, terminal leaflet petiolate; peduncles 1.5-9 (12) cm long, somewhat villous-hirsute; spikes 2.5-9 (14) cm long; rachis spreading hairy; bracts 4-7 mm long; calyx 5-7 mm long, obscurely 10 ribbed, tube not translucent; flowers 7.5-11 mm long, white; pods villous.

TAXONOMIC PROBLEMS: The Hole-in-the-Rock prairie clover is a near ally of D. flavescens within whose range it occurs, but with which it is apparently allopatric.

EXISTING OR POTENTIAL THREATS: Industrial expansion, mineral exploration, and changes in land use are all potential threats to this species.

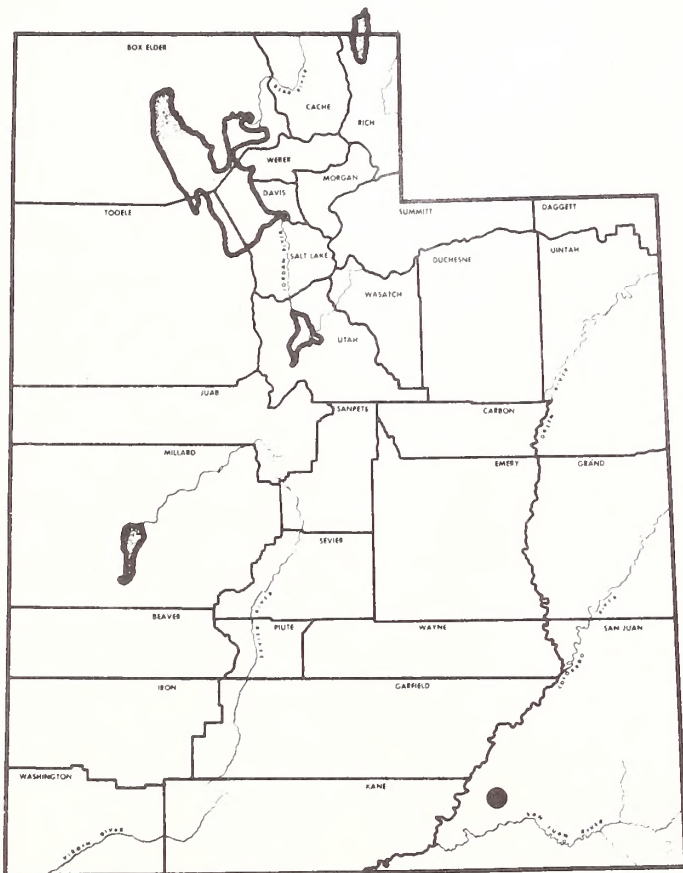
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: The one population of this plant deserves preservation even if it is only an exclusive phase within the total variation of the D. flavescens complex.

RECOMMENDATIONS: This handsome prairie clover should be treated as threatened.

Dalea epica

cm



SCIENTIFIC NAME: Hedysarum boreale Nutt. var. gremiale (Rollins)
Northstrom and Welsh

FAMILY: Fabaceae

CITATION: Great Basin Naturalist 30: 125. 1970.

SYNONYMS: Hedysarum gremiale Rollins. (Rhodora 42: 230. 1940.)

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Spiny sweetvetch

KNOWN DISTRIBUTION: Duchesne and Uintah cos., Utah

HABITAT: Moenkopi Shale and Duchesne River formations, sandy silt; pinyon-juniper and mixed desert shrub communities

ELEVATION: 5500 to 6000 feet (1678 to 1830 m)

DESCRIPTION: Herbaceous perennials; roots stout; stems 2 to many, 2.5-7 dm long, usually branched above, sparsely pubescent to canescent; stipules usually pale brown, occasionally brown streaked with subulate tip, 2-10 mm long; leaves odd pinnate, 3-12 cm long; leaflets 5-15, pubescent on both surfaces or glabrous above, ovate, elliptic, linear, or obovate, 10-35 mm long; bracts subulate; flowers 15-45, 10-19 mm long, pink to magenta or purple; style slender, curved; laments pendulous to spreading, articles 2-5, seldom black pigmented, covered with spines.

TAXONOMIC PROBLEMS: H. boreale var. gremiale can be distinguished from the other H. boreale subspecies or varieties by the spines borne on the fruit.

EXISTING OR POTENTIAL THREATS: Visitor use in Dinosaur National Monument, highways and their impacts elsewhere are threats to this plant.

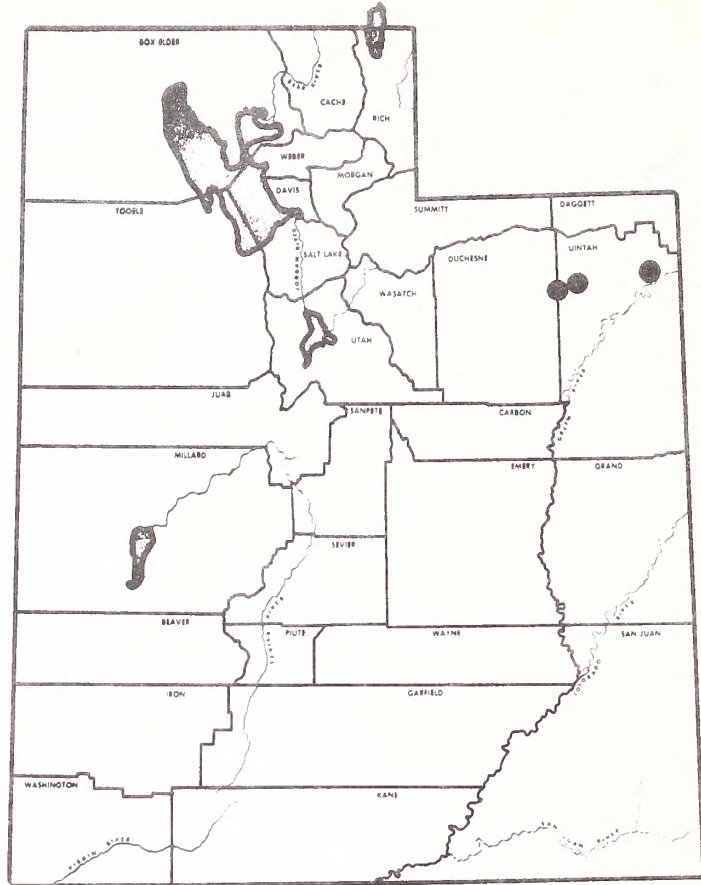
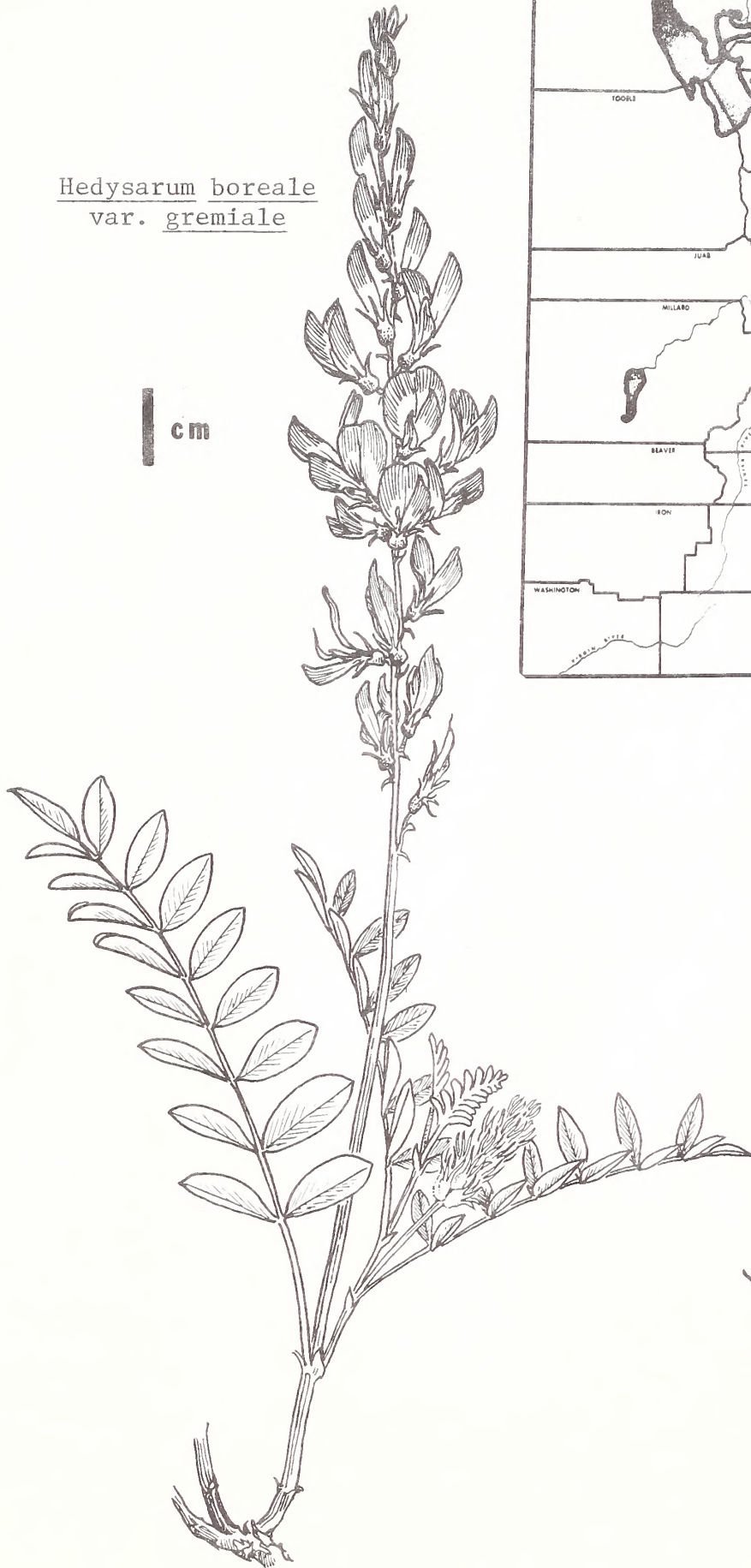
LAND OWNERSHIP/MANAGEMENT: National Park Service; Bureau of Land Management; Utah State; private

REMARKS: The origin of the only member of the tribe Hedysareae in North America to bear spines on the fruit has important genetic implications for scientific study.

RECOMMENDATIONS: Populations should be surveyed and a monitoring program established. Future surface modifications should not include the known range of this taxon.

Hedysarum boreale
var. gremiale

cm



SCIENTIFIC NAME: Lupinus jonesii Rydb.

FAMILY: Fabaceae

CITATION: Bull. Torrey Bot. Club 30: 256. 1903.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Jones lupine

KNOWN DISTRIBUTION: Washington Co., Utah

HABITAT: In alluvium, sandy or limestone soil; pinyon-juniper and mountain brush communities

ELEVATION: 5800 to 7000 feet (1769 to 2135 m)

DESCRIPTION: Perennial, 50-120 cm tall from a woody caudex; pubescence of stems spreading hirsute; leaves mainly cauline; petioles 1-8 cm long; leaflets 6-9, 9-60 mm long, 3-13 mm wide, oblanceolate to oblong-oblanceolate, folded or flat, pilose on both surfaces; racemes 18-65 flowered, 8-28 cm long in anthesis, axis 9-30 cm long in fruit; flowers 12-15 mm long, pallid or blue-purple; pedicels 2-5 mm long; calyx strongly gibbous at base of upper lip; banner with a central yellow or brown spot, more or less strigose dorsally, reflexed at or beyond the midpoint.

TAXONOMIC PROBLEMS: The Jones lupine appears to have affinities with L. sericeus Pursh.

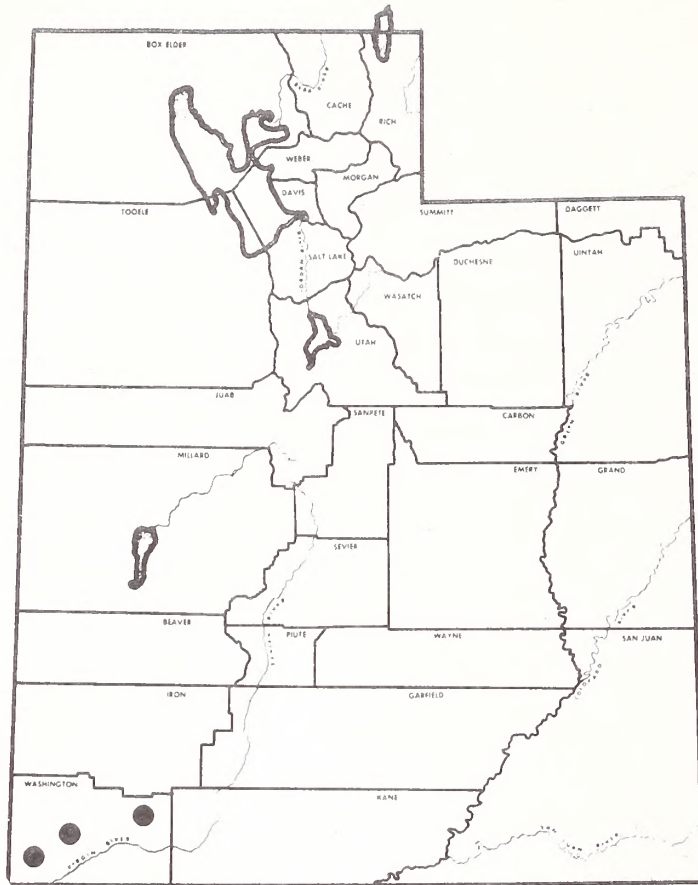
EXISTING OR POTENTIAL THREATS: Reclamation of pinyon and juniper communities, roadways, and potential industrial development are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; U. S. Forest Service

REMARKS: The few collections of this species are inadequate to determine the range of morphological variability.

RECOMMENDATIONS: Much further work should be done in defining this species and its role in the genus.

Lupinus jonesii



SCIENTIFIC NAME: Psoralea epipsila Barneby

FAMILY: Fabaceae

CITATION: Leaflet. W. Bot. 3: 193. 1943.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Kane breadroot

KNOWN DISTRIBUTION: Kane Co., Utah; Coconino Co., Arizona

HABITAT: Chinle and Moenkopi formations, clay soil; pinyon-juniper, woodland, mixed desert shrub, sagebrush community

ELEVATION: 4000 feet (1220 m)

DESCRIPTION: Plant perennial, subcaulescent, 3.5-10.5 cm tall, from a slender subterranean caudex, branches arising from deep seated tuberous roots; stems with 2-3 elongated internodes, strigose; leaves mainly 5-foliate; petioles, 0.8-5 cm long, pubescent like the stems; leaflets 5.8-25 mm long, 3-15 mm wide, obovate, grayish, strigulose and punctate beneath, bright yellow green, punctate and thinly strigose above (especially along the veins); peduncles to 5 cm long; bracts broadly lanceolate, 10-13 mm long; flowers 11-14 mm long, pale violet; calyx 11-14 mm long, the tube 5-6 mm long, strongly gibbous, the lower tooth about 8 mm long, upper ones shorter and narrower; pods 1-seeded.

TAXONOMIC PROBLEMS: This obscure species has affinities with P. pariensis, P. mephitica, and P. megalantha, all apparently more widespread than is P. epipsila.

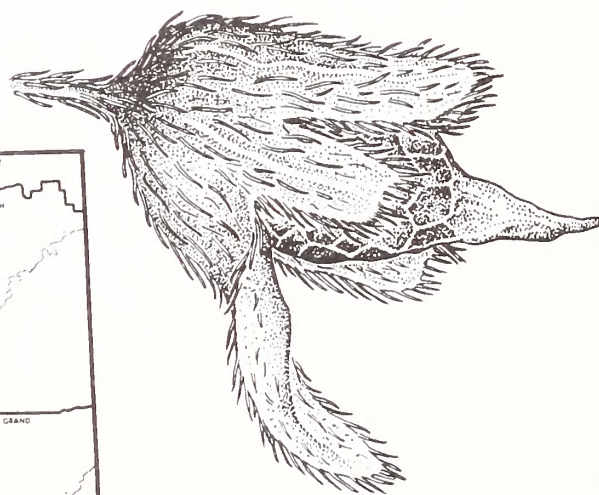
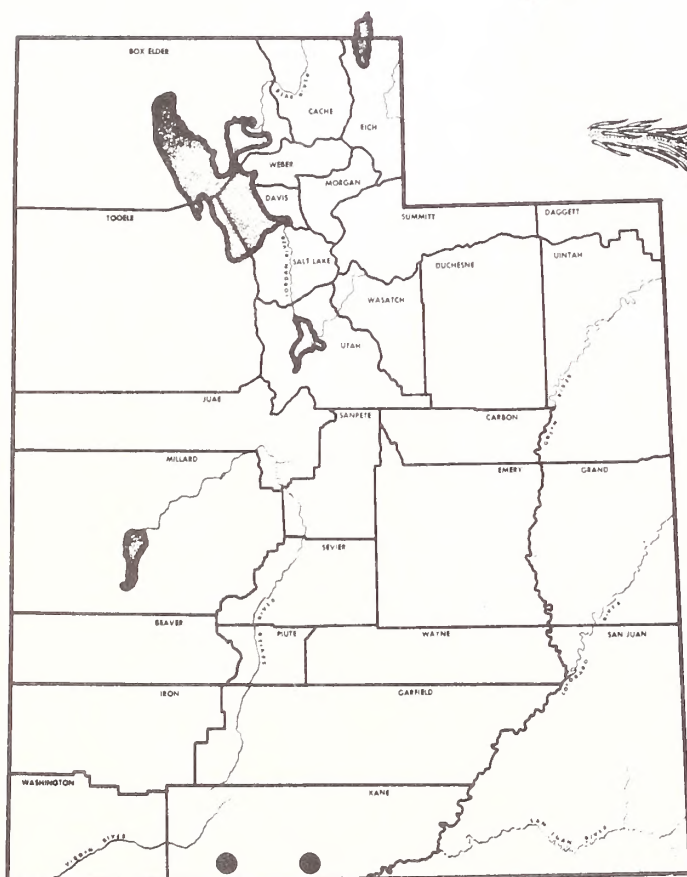
EXISTING OR POTENTIAL THREATS: Industrial development, land use changes, and road, transmission line and pipeline construction threaten the Kane breadroot.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: This plant is a Mohave Strip endemic.

RECOMMENDATIONS: Much work needs to be done to determine the total range and population size of this obscure plant.

Psoralea epipsila



SCIENTIFIC NAME: Psoralea pariensis Welsh and Atwood

FAMILY: Fabaceae

CITATION: Great Basin Naturalist 35: 353. 1975.

SYNONYMS: None

COMMON NAME: Paria breadroot

KNOWN DISTRIBUTION: Garfield and Kane cos., Utah

HABITAT: Wasatch Limestone Formation, alluvium or sandy alluvium; ponderosa pine woods community

ELEVATION: 5600 to 8000 feet (1700 to 2430 m)

DESCRIPTION: Acaulescent or subacaulescent, 2-9 cm tall, from slender subterranean caudex branches arising from deep-seated tuberous roots; stems lacking or with very short internodes above ground, strigose; leaves mainly 3-foliate, petioles 1.3-7 cm long, strigose; leaflets 9-25 mm long, 7-22 mm wide, obovate or orbicular, cuneate, rounded to truncate or emarginate apically, gray green, glandular, strigose beneath, yellow green, glandular and strongly strigose along the veins above; stipules scarious, 4-10 mm long; peduncles 0.5-2.8 cm long, hairs appressed; racemes 6- to 15-flowered; calyx 8.6-11.4 mm long, lower teeth to 6.8 mm long; pods included in the calyx, about 9 mm long.

TAXONOMIC PROBLEMS: P. pariensis is related to P. megalantha, but differs in the shorter flowers and showy white veins on the upper side of the leaves.

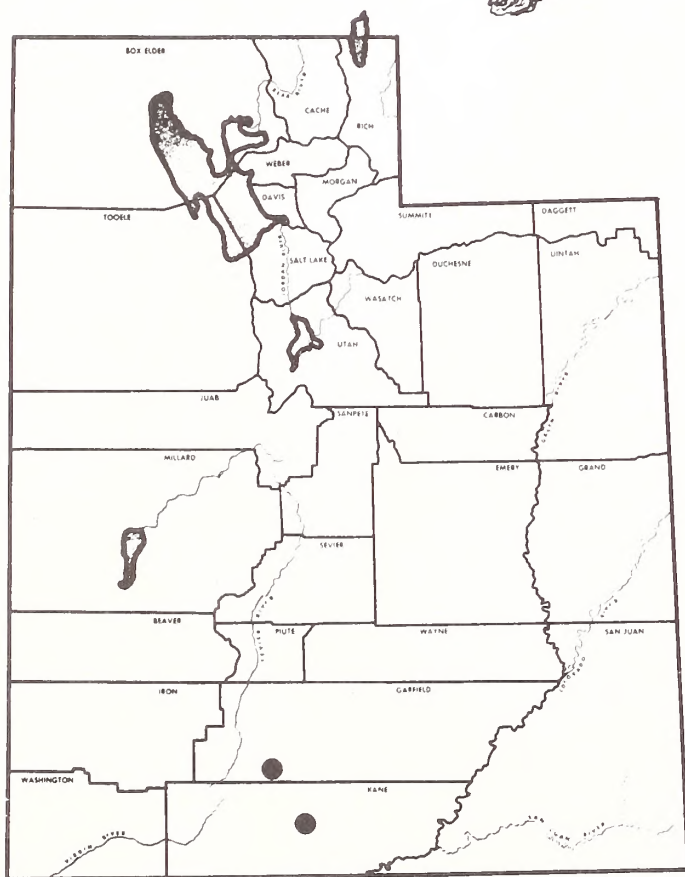
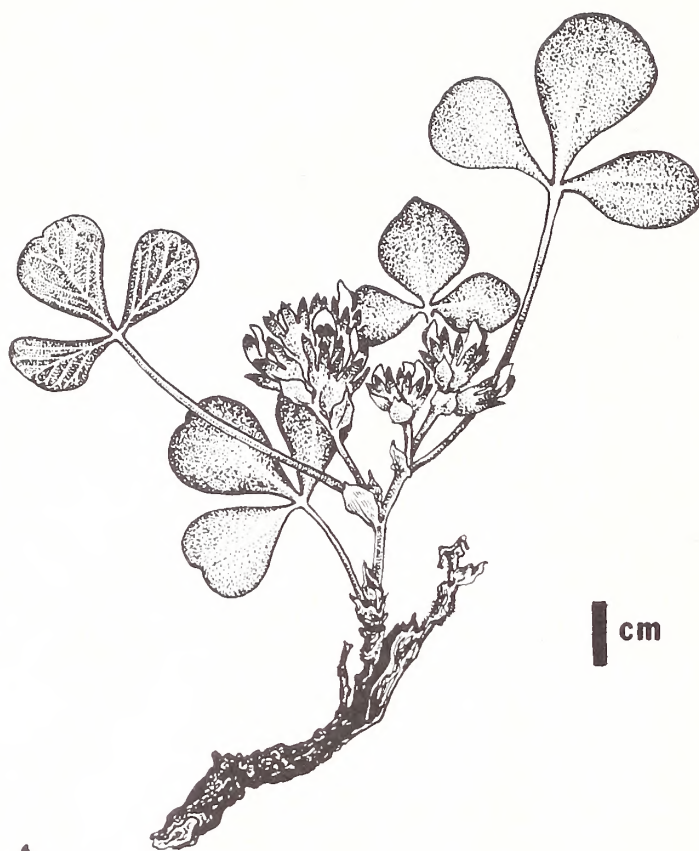
EXISTING OR POTENTIAL THREATS: Land management policy changes and potential construction threaten this species.

LAND OWNERSHIP/MANAGEMENT: National Park Service; Bureau of Land Management

REMARKS: Although known from several localities, the Paria breadroot is still imperfectly known taxonomically.

RECOMMENDATIONS: This plant should be regarded as threatened.

Psoralea pariensis



SCIENTIFIC NAME: Phacelia anelsonii J. F. MacBride

FAMILY: Hydrophyllaceae

CITATION: Contr. Gray Herb. 49: 26. 1917.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: MacBride scorpion plant

KNOWN DISTRIBUTION: Washington Co., Utah; Lincoln Co., Nevada; Inyo and San Bernardino cos., California

HABITAT: Shady places at the base of sandstone or limestone cliffs, or among rocks in sandy to gravelly washes; warm desert shrub and Joshua tree community

ELEVATION: 2500 to 5000 feet (763 to 1373 m)

DESCRIPTION: Erect annual, 1-5.5 dm high; stems terete, usually covered with brownish stipitate glands, leafy throughout; leaves narrowly to broadly oblong, pinnately cleft, 1.5-8 cm wide, pubescence brownish, stipitate glandular, sometimes a few non-glandular hairs; petioles from 3 cm long on lower part of the stem to sessile on the upper part, pinnae somewhat reduced toward the base of the leaf, margins crenulate; inflorescence racemose to paniculate, glandular pubescent; corolla light violet or white, rotate-campanulate, 6 mm long and wide, stamens and style included; sepals oblanceolate, setose to glandular, longer than the capsule; mature seeds 4, light brown, ventral surface strongly alveolate, divided by a ridge, dorsal surface alveolate.

TAXONOMIC PROBLEMS: P. anelsonii is related to P. crenulata as is indicated by the leaf and seed characters, but it is easily distinguished by the included stamens and style.

EXISTING OR POTENTIAL THREATS: Off-road vehicles, changes in land use, and transmission corridor construction are threats to this plant.

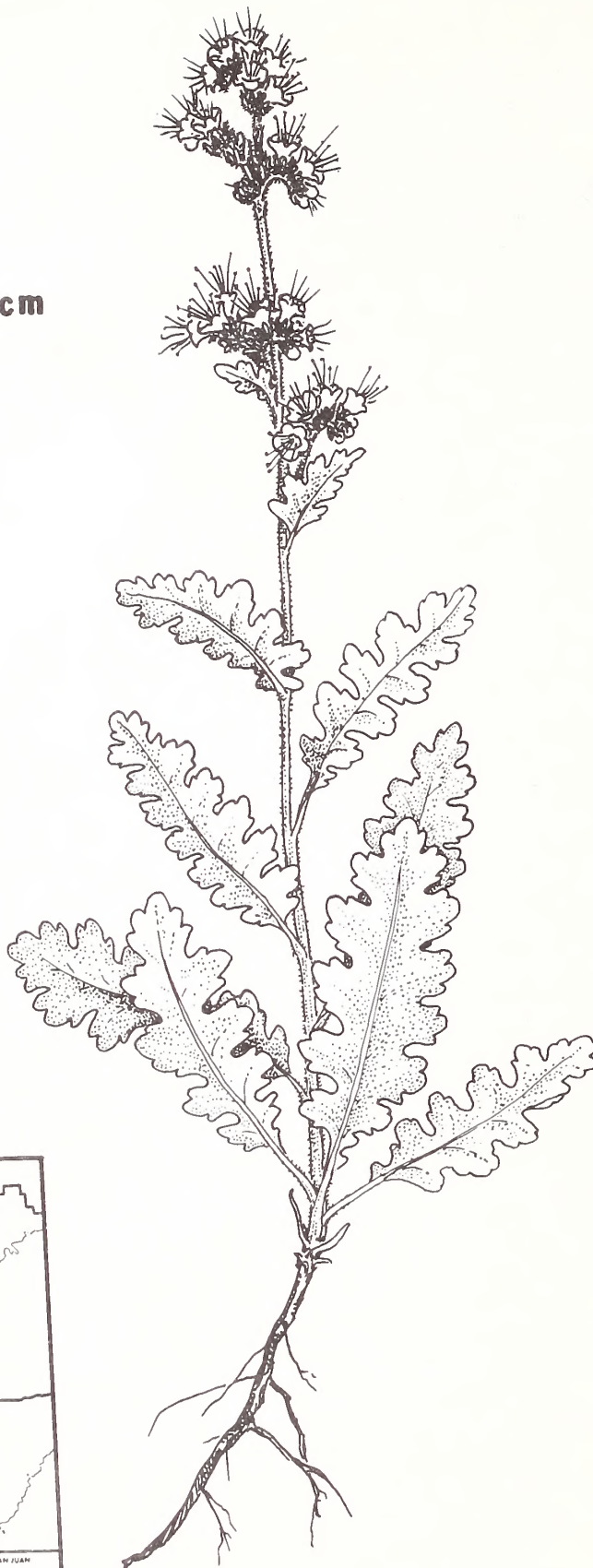
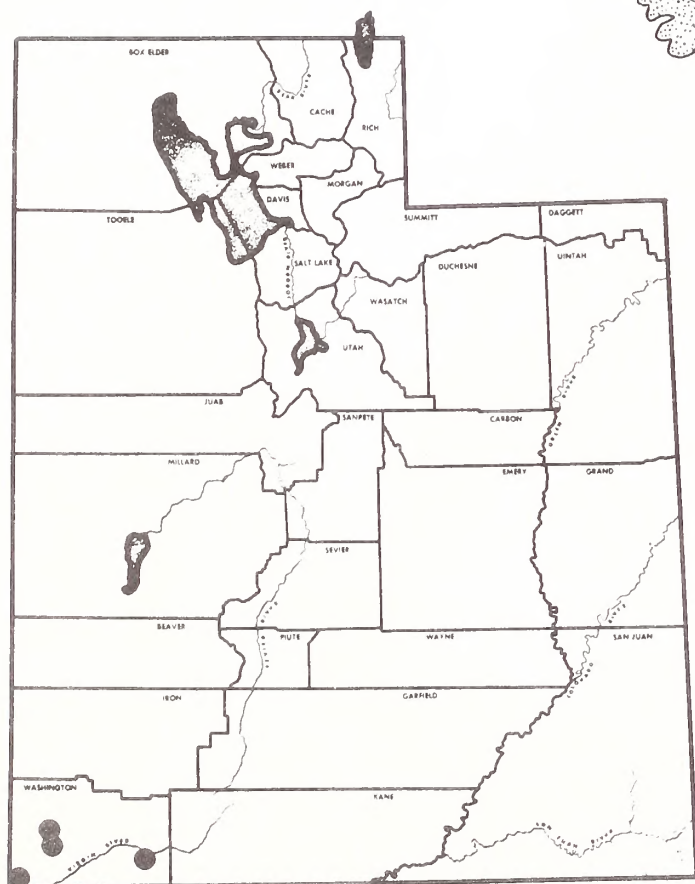
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management

REMARKS: The plant is narrowly restricted in Utah and might readily be eradicated from the flora.

RECOMMENDATIONS: Despite the rather broad distribution outside Utah, this plant should be treated as threatened.

Phacelia anelsonii

1 cm



SCIENTIFIC NAME: Phacelia argillacea Atwood

FAMILY: Hydrophyllaceae

CITATION: Phytologia 26: 437. 1973.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978. Officially listed as endangered, Federal Register, 28 September 1978.

COMMON NAME: Clay phacelia

KNOWN DISTRIBUTION: Utah Co., Utah

HABITAT: Green River Shale Formation, detritus slopes, rocky clay soil; grassland and scattered mountain shrub community

ELEVATION: 6600 feet (2013 m)

DESCRIPTION: Plant an annual, sometimes biennial, 1-3.5 dm tall; stems mostly glabrous; leaves pinnatifid, 0.8-6 dm long, 0.5-1.5 cm wide, petioles strigose; inflorescence a scorpioid cyme, glandular to hirsute; pedicel 0.7-1 mm long; sepals elliptic to oblanceolate, 2-3.8 mm long with glandular pubescence; corolla campanulate, blue to violet, 5 mm long and as wide with exserted style and anthers, sometimes to 7 mm; capsule subglobose, 3.3 mm long, and 2.4 mm wide with glandular pubescence; four mature seeds, brown foveolate, with a single groove on one side of the ventral rib.

TAXONOMIC PROBLEMS: Closely related to P. bakeri (Brand) McBride and P. glandulosa Nutt., it can be distinguished by the nearly glabrous herbage, smaller flowers and a seed which has a single groove on one side of the ventral ridge.

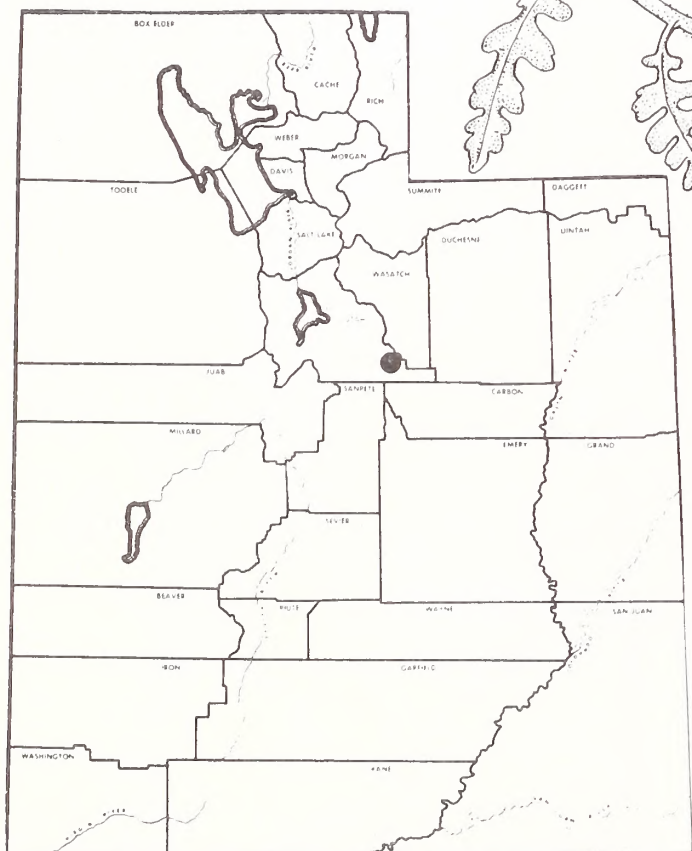
EXISTING OR POTENTIAL THREATS: Changes in right-of-way and other construction activities endanger this plant.

LAND OWNERSHIP/MANAGEMENT: Private; Denver Rio Grande Western Railroad

REMARKS: Consisting of a single population, this endemic is narrowly adapted to the clay soil on slopes of the Green River Shale Formation.

RECOMMENDATIONS: The few individuals (10-15, 1977) should be regarded as endangered.

Phacelia argillacea



SCIENTIFIC NAME: Phacelia cephalotes Gray

FAMILY: Hydrophyllaceae

CITATION: Proc. Amer. Acad. Arts 10: 325. 1875.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Virgin scorpion plant

KNOWN DISTRIBUTION: Kane and Washington cos., Utah; Mohave and Navajo cos., Arizona

HABITAT: Chinle Formation, alluvium, bare clay soil; salt desert shrub community

ELEVATION: 2000 to 4500 feet (610 to 1373 m)

DESCRIPTION: Plants annual, stems to 10 cm long, nearly prostrate, glandular-villous and puberulent; leaf blades oblong or elliptic, somewhat fleshy, usually twice as long as wide, glandular hirsute; calyx 1-2 cm long, hispid; corolla white with white, blue or purple tube, 4 cm long, stamens included, almost cylindric; style bifid at the apex; seeds 8-16.

TAXONOMIC PROBLEMS: None

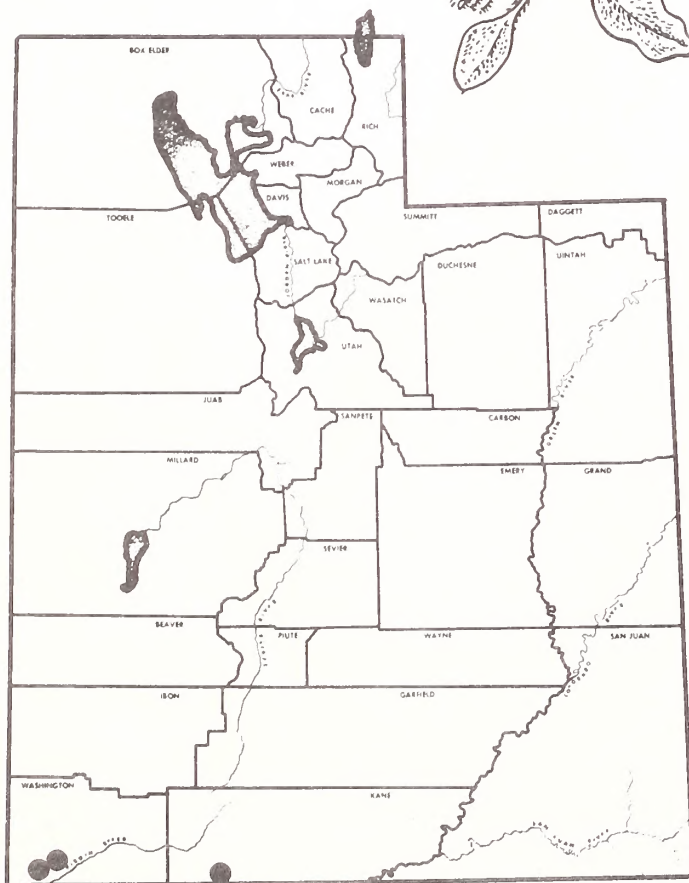
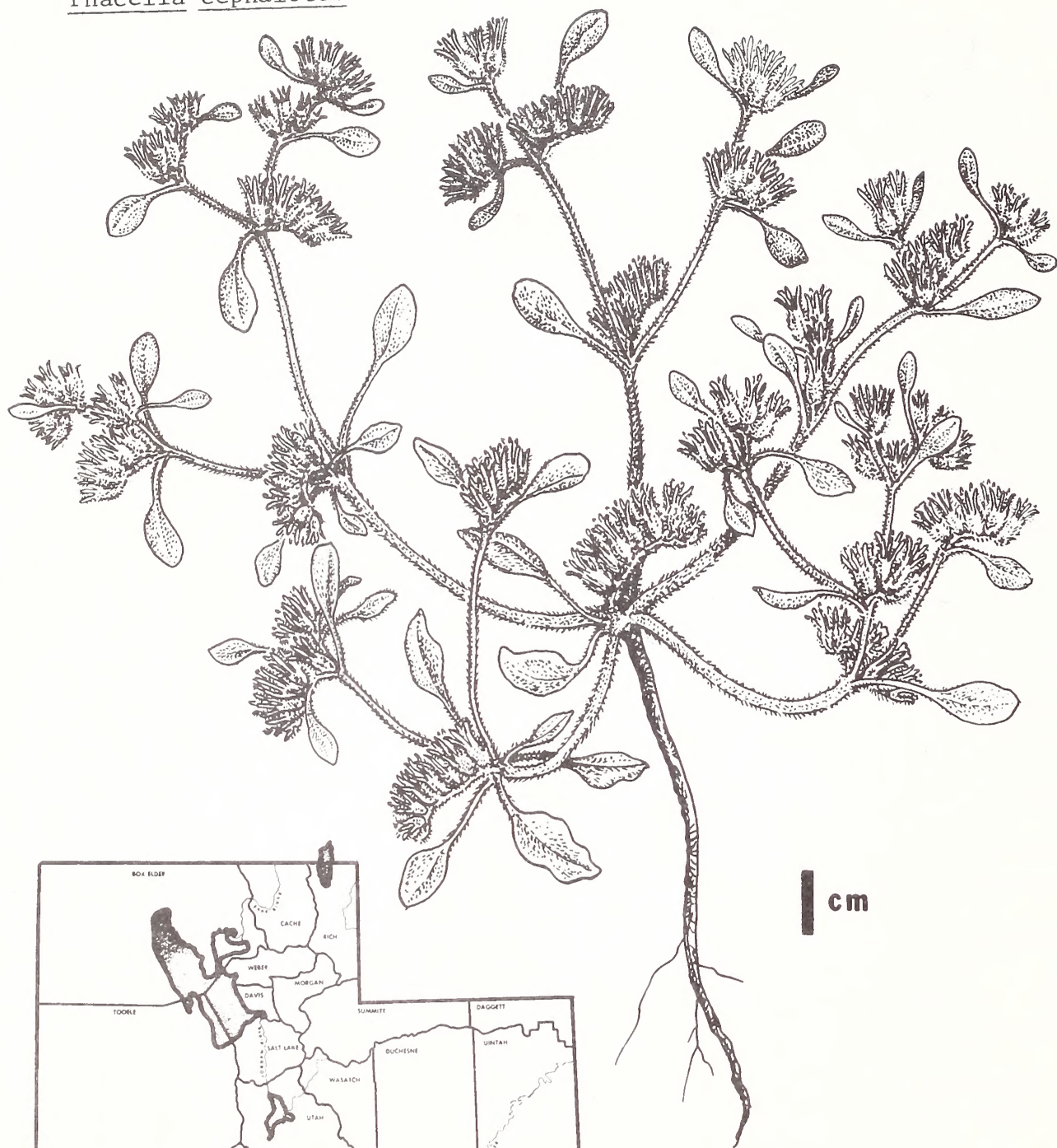
EXISTING OR POTENTIAL THREATS: Industrial development, electric generating station, pipeline, and access roads are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; private

REMARKS: As more information becomes available on this annual plant, it should probably be delisted.

RECOMMENDATIONS: Additional information should be generated on distribution of this species.

Phacelia cephalotes



SCIENTIFIC NAME: Phacelia howelliana Atwood

FAMILY: Hydrophyllaceae

CITATION: Rhodora 74: 456. 1972.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Howell scorpion weed

KNOWN DISTRIBUTION: Grand, Kane and San Juan cos., Utah

HABITAT: Navajo Sandstone Formation, dry sandy soil; hanging garden, scattered juniper and desert shrub communities

ELEVATION: 4500 to 5000 feet (1373 to 1525 m)

DESCRIPTION: Plants annual, 0.9-2.3 dm tall; stems usually branched and leafy toward the base, glandular and hirsute; leaves broadly oblong to oval, 2-6 cm long, 1-2.5 cm wide, irregularly crenate to lobed, strigose, slightly glandular, petiole up to 5 cm long; inflorescence of compound scorpioid cymes; pedicels up to 2 mm long; sepals 3.5-4.5 mm long, glandular hirsute; corolla 5-6 mm long, 6-7 mm wide; rotate to funnelform, the lobes light violet to blue, tube white; stamens and style exerted, 3-4 mm, style shorter than stamens, bifid 3/4 length; capsule subglobose, glandular; seeds 4, brown.

TAXONOMIC PROBLEMS: Related to P. corrugata, P. howelliana differs by its low, much branched growth form, smaller corolla with a white tube, and larger reddish seed.

EXISTING OR POTENTIAL THREATS: Changes in the land use, waters of Lake Powell, and industrial development are threats to this species.

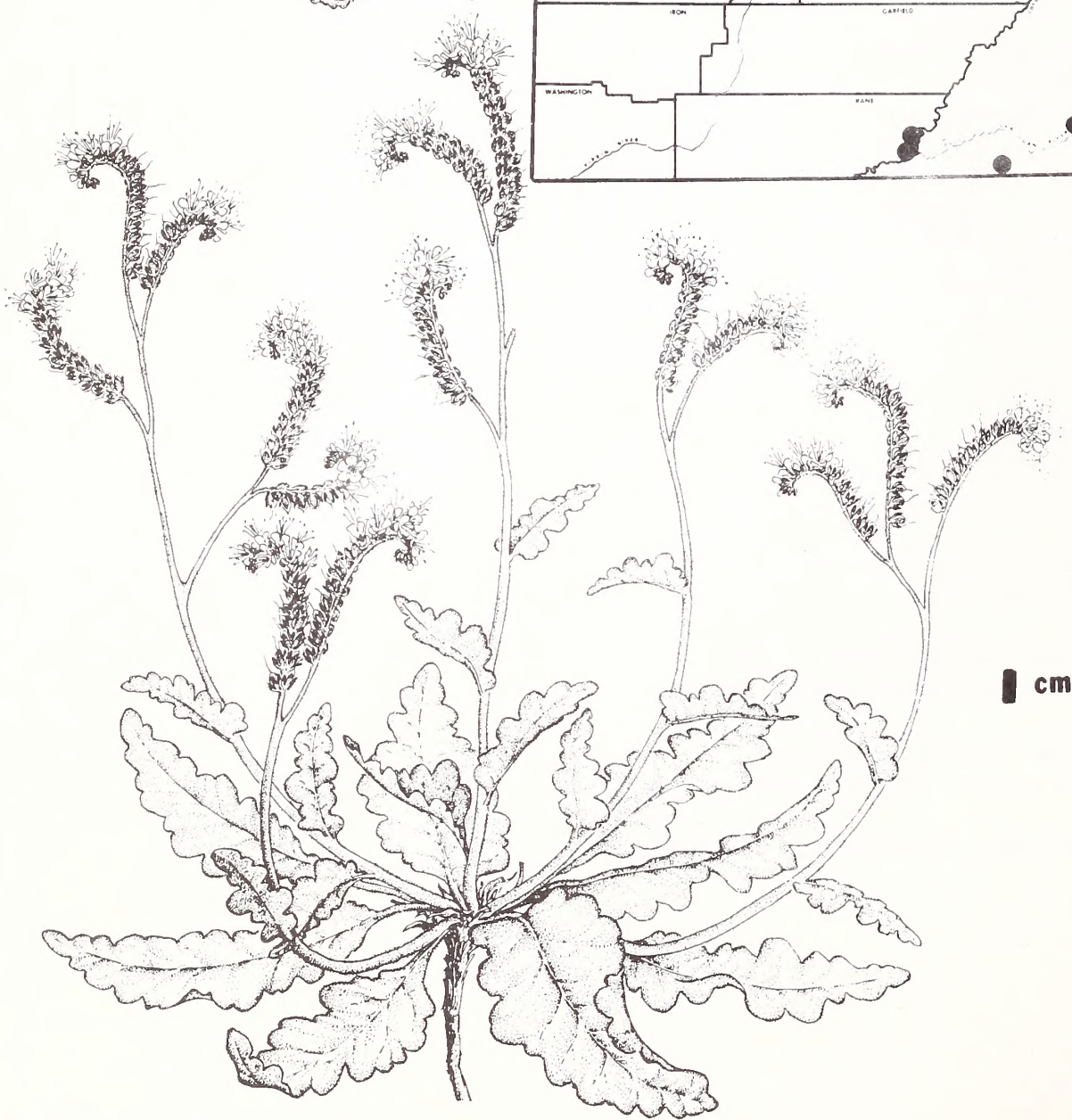
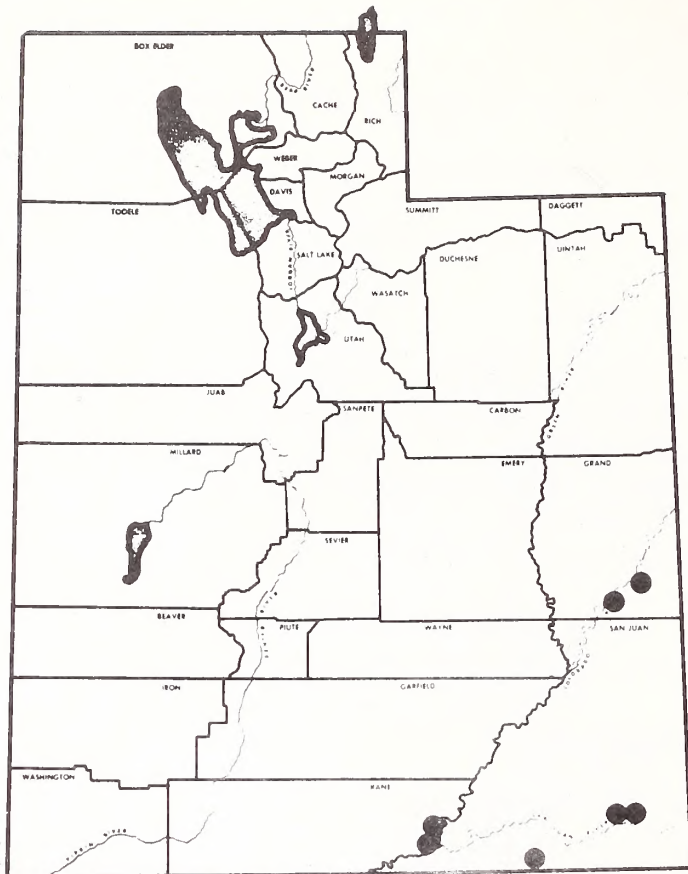
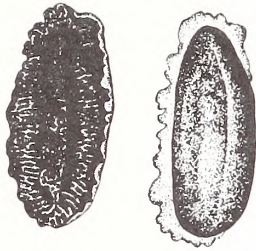
LAND OWNERSHIP/MANAGEMENT: National Park Service; Bureau of Land Management; Bureau of Indian Affairs

REMARKS: The Howell scorpion weed is not known to be abundant anywhere in its range. Populations are disjunct.

RECOMMENDATIONS: The plant should be regarded as threatened.

Phacelia howelliana

1 mm



1 cm

SCIENTIFIC NAME: Phacelia indecora J. T. Howell

FAMILY: Hydrophyllaceae

CITATION: Amer. Midl. Naturalist 29: 12. 1943.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Drab scorpion plant

KNOWN DISTRIBUTION: Wayne and San Juan cos., Utah

HABITAT: Clay and basalt hills; salt desert and blackbrush communities.

ELEVATION: 4400 feet (1342 m)

DESCRIPTION: Plants annual, 0.3-1.4 dm tall; stems erect to spreading, branched, glandular; leaves elliptic to oblong, 0.4-2.5 cm long, hirsutulous and glandular; sepals oblanceolate, 3-5 mm long; corolla narrowly campanulate, light blue, 3-4 mm long, lobes pubescent, tube pale yellow and streaked with blue lines; capsule elliptic, 3-4 mm long; seeds about 40.

TAXONOMIC PROBLEMS: P. indecora is related to P. pulchella, but differs in its smaller, inconspicuous corolla.

EXISTING OR POTENTIAL THREATS: Land status changes are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management: Utah State

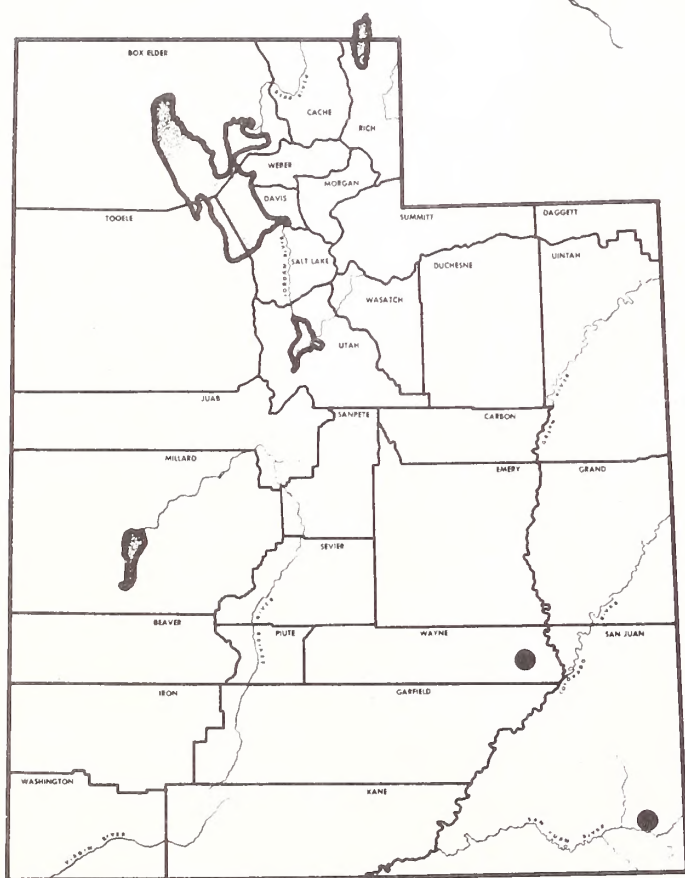
REMARKS: Annuals comprise a group of plants which are difficult to access. They appear abundantly in years when the moisture regimen is proper. The true abundance of this species is unknown. Further work is indicated.

RECOMMENDATIONS: The species should be regarded as endangered.

Phacelia indecora



1 cm



SCIENTIFIC NAME: Phacelia mammillarensis Atwood

FAMILY: Hydrophyllaceae

CITATION: Phytologia 26: 437. 1973.

SYNONYMS: None

Status: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Nipple Bench phacelia

KNOWN DISTRIBUTION: Garfield and Kane cos., Utah

HABITAT: Tropic Shale and Kaiparowits formations

Elevation: 4200 to 6000 feet (1281 to 1830 m)

Description: Plants annual, 0.9-5 dm tall; stems erect or sometimes branched below, yellowish green or green, densely stipitate-glandular; leaves simple, oblong to oblanceolate, irregularly crenate to dentate, 1-7 cm long, 0.5-3 cm wide, stipitate-glandular, setose to strigulose, sessile, or nearly so; inflorescence a terminal or lateral compound scorpioid cyme, with stipitate-glandular hairs, puberulent, hirsute to setose; sepals 4-6 mm long, stipitate-glandular hairy; corolla tubular to funnellform, lobes pale blue to white, 5-8 mm long; fruit a sub-globose capsule; seeds 4, 3 mm long, brown, pitted, with a ventral ridge.

TAXONOMIC PROBLEMS: P. mammillarensis is related to P. corrugata but differs in its larger stature, pale blue to whitish corollas and by its longer and more densely stipitate-glandular pubescence.

EXISTING OR POTENTIAL THREATS: Off-road vehicles and potential industrial development are threats to this species.

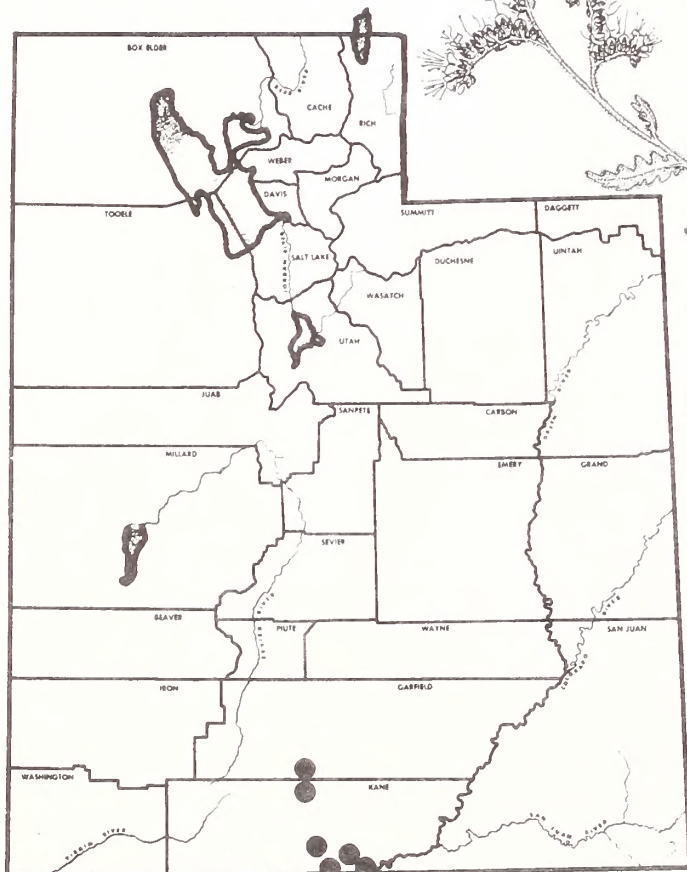
LAND OWNERSHIP/MANAGEMENT: National Park Service; Glen Canyon Recreational Area; Bureau of Land Management; Utah State.

REMARKS: This species occurs mainly on the shale members of those formations east of Glen Canyon City, Utah.

RECOMMENDATIONS: Few plant species are capable of surviving on the colluvial soils of the region. This plant should be regarded as essential.

Phacelia mammillarensis

cm



SCIENTIFIC NAME: Phacelia utahensis E. G. Voss

FAMILY: Hydrophyllaceae

CITATION: Bull. Torrey Bot. Club 64: 135. 1937.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Utah phacelia

KNOWN DISTRIBUTION: Carbon, Sanpete and Sevier cos., Utah

HABITAT: Arapien Shale Formation, clay hills and banks; salt desert shrub community

ELEVATION: 5600 to 5700 feet (1708 to 1739 m)

DESCRIPTION: Plants stout, erect annuals, 0.8-5.8 dm tall; stems usually simple, sometimes branched at base, brownish to yellowish, densely glandular and finely pubescent; leaves linear to narrowly lanceolate, strigose to ciliate on the margin, 1.5-12 cm long, 0.5-1.5 cm wide, margins often revolute, crenate, basal ones petiolate, upper ones sessile, auriculate to cordate; inflorescence thyrsoïd, densely flowered; sepals 3-4 mm long; corolla rotate to campanulate, lobes bluish to violet, tube yellowish; stamens and style exserted; capsule globose or subglobose, glandular and setose; seeds 4.

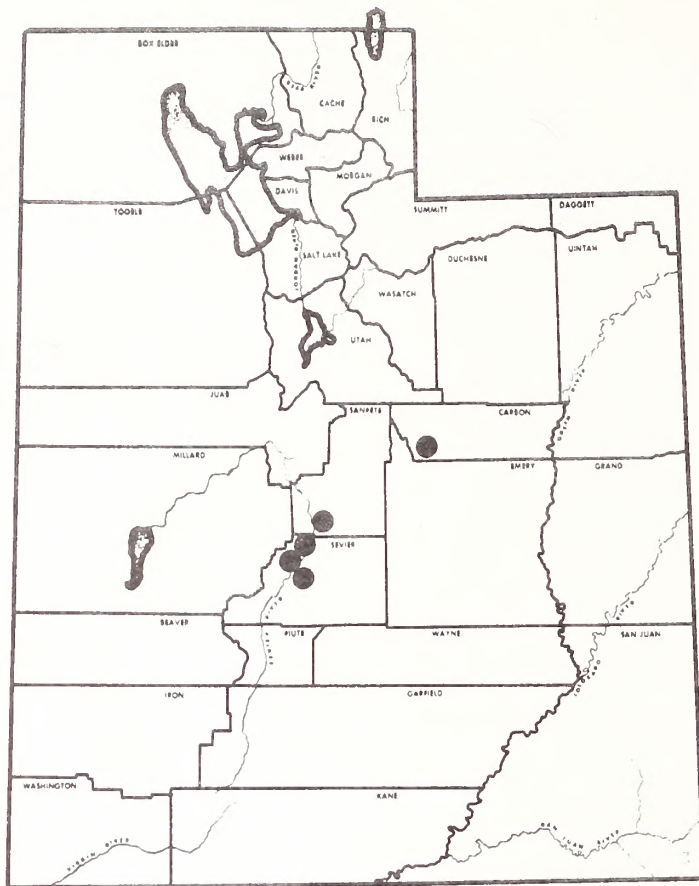
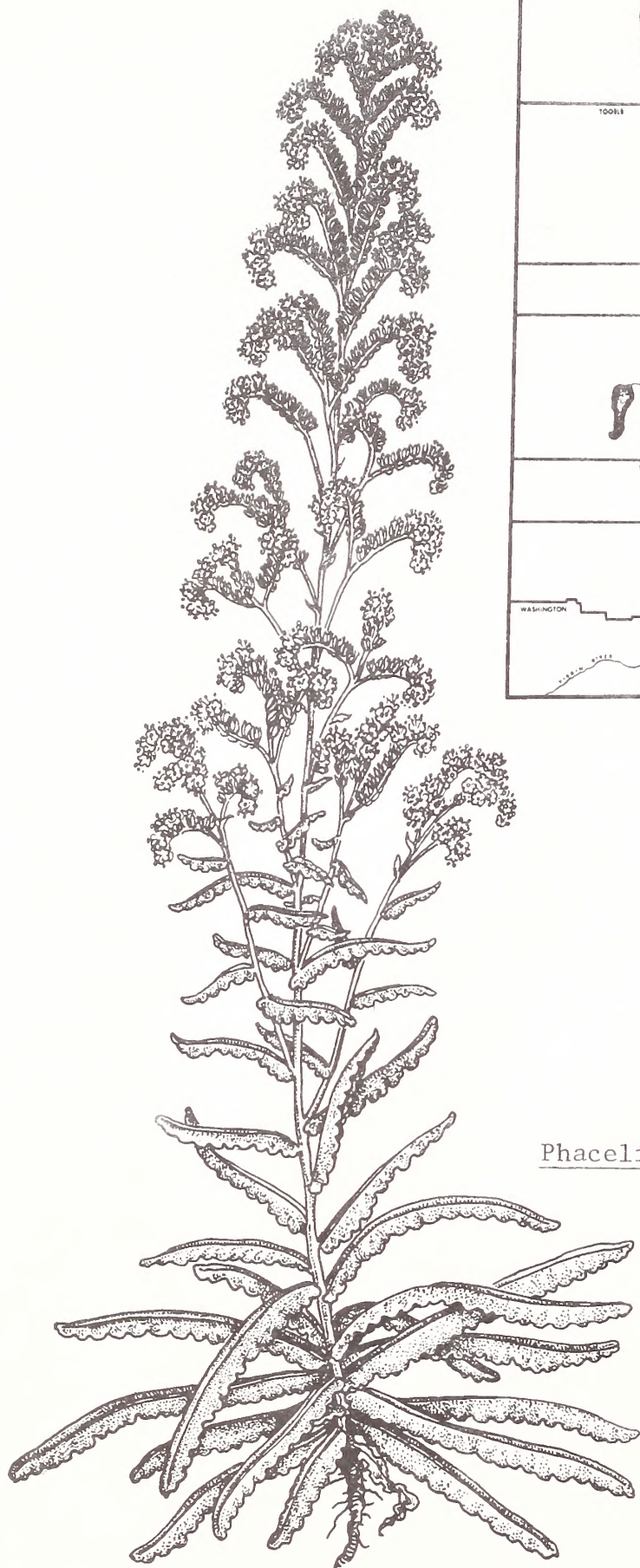
TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Gypsum exploitation, potential railroad construction, Interstate 70 construction, and off-road vehicles are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State; private

REMARKS: This plant appears to be an obligate gypsophile. Because of its habitat specificity, the Utah phacelia is subject to eradication.

RECOMMENDATIONS: This exquisitely beautiful plant should be regarded as threatened.



1 cm

Phacelia utahensis

SCIENTIFIC NAME: Allium passeyi Holmgr. and Holmgr.

FAMILY: Liliaceae

CITATION: Brittonia 26: 309. 1974.

SYNONYMS: None

STATUS: Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Passey onion

KNOWN DISTRIBUTION: Box Elder Co., Utah

HABITAT: Ancient lake shore alluvial deposits, shallow lithosolic soil to 6 inches deep, over dolomite limestone outcrops

ELEVATION: 4800 feet (1464 m)

DESCRIPTION: Bulb ovoid, the outer coat fibrous reticulate; leaves 2-3, 3-6.5 mm wide, 11-20 cm long; scape 11-21 cm long; bracts 2-4, mostly 1-nerved, 8-14 mm long; flowers 10-30, campanulate to urceolate, tepals white to light-pink, 6-10 mm long, lanceolate-ovate to lanceolate acuminate; ovary with a crest of 6 small tubercles, surrounding the style; capsule 3.2-4.5 mm long; seeds black, alveolate and minutely pustulose.

TAXONOMIC PROBLEMS: Related to Allium textile, A. passeyi is distinguished by its 1-nerved bracts, usually white flowers, wider leaves (3-6.5 mm) with two or three leaves per scape.

EXISTING OR POTENTIAL THREATS: Possible changes in the land management could threatened this species.

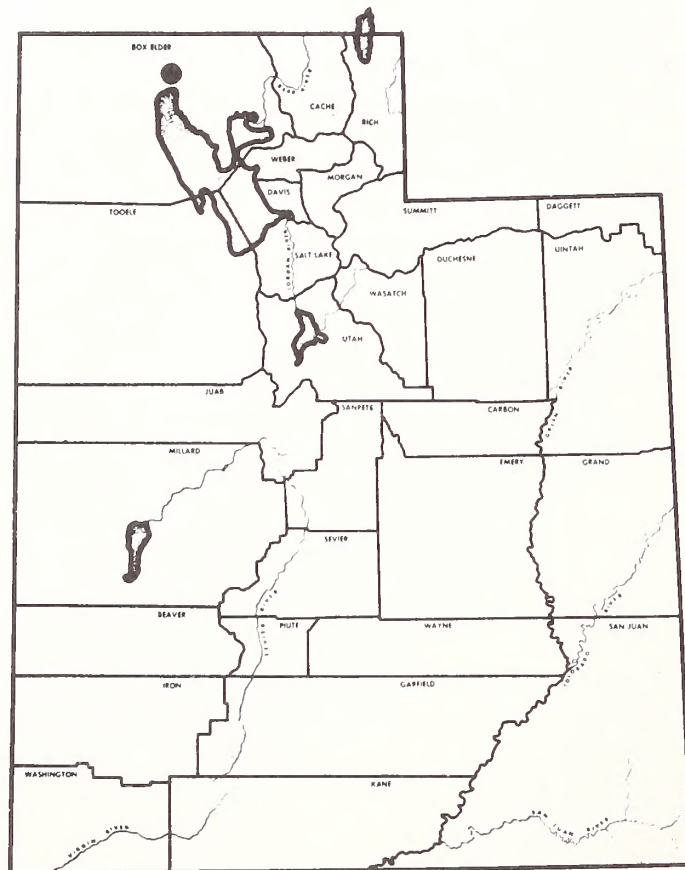
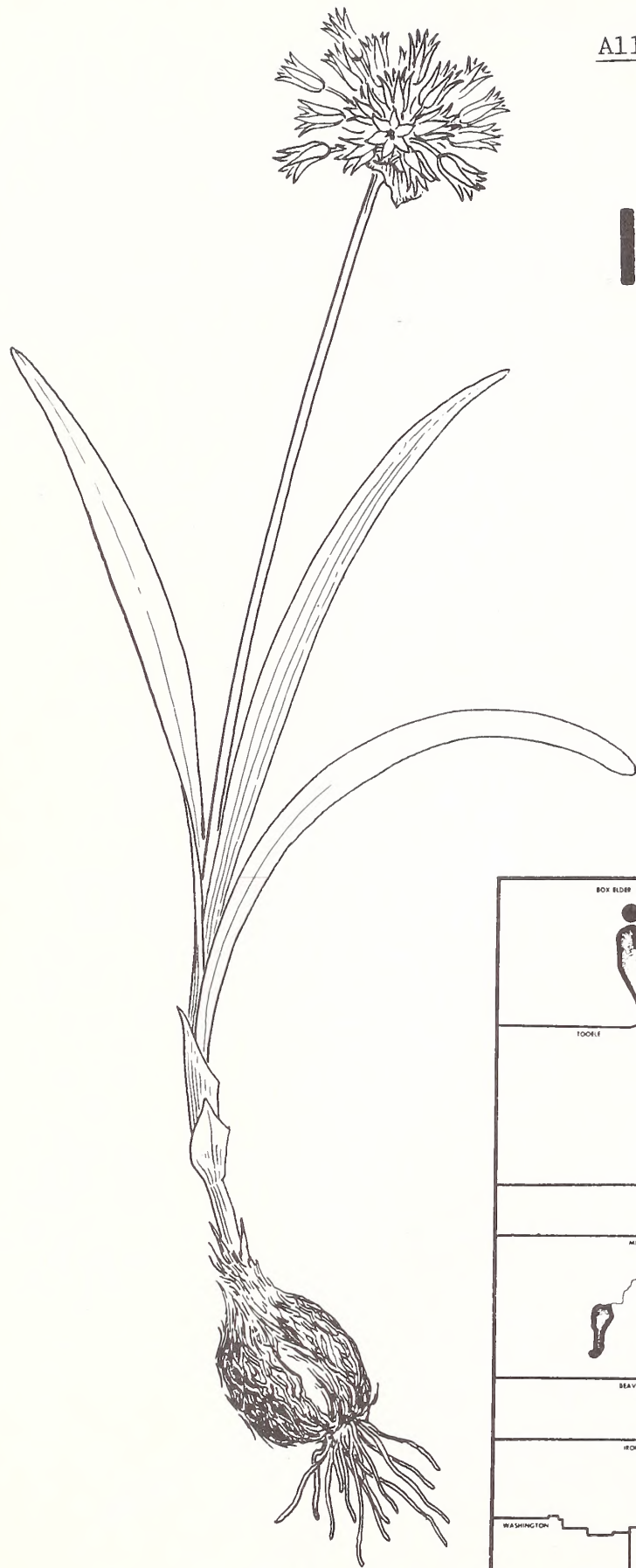
LAND OWNERSHIP/MANAGEMENT: Private

REMARKS: The Passey onion is known only from the type locality with two small populations existing at the present time.

RECOMMENDATIONS: This restricted wild onion should be regarded as endangered.

Allium passeyi

cm



SCIENTIFIC NAME: Zigadenus vaginatus (Rydb.) J. F. Macbride

FAMILY: Liliaceae

CITATION: Contr. Gray Herb. 53: 4. 1918.

SYNONYMS: Anticlea vaginata Rydb. (Bull. Torrey Bot. Club 39: 108. 1912).

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Sheathed death camas

KNOWN DISTRIBUTION: Grand, Kane, and San Juan cos., Utah

HABITAT: Navajo, Entrada, Cedar Mesa Sandstone formations; hanging gardens and canyon bottoms along seeps

ELEVATION: 3700 to 6200 feet (1129 to 1891 m)

DESCRIPTION: Perennial, growing in big clumps; corm-like rootstock; stems 7-10 dm high; base covered with scarious sheaths; leaf blades linear, 3-7 dm long, 6-10 mm wide, with several veins; inflorescence paniculate branched, lower bracts linear or subulate, 3-6 cm long, green, upper ones ovate, 5-10 mm long, white; pedicels 5-10 mm long, often recurved; petals and sepals white, elliptic, obtuse, 7-8 mm long, usually 7-nerved; filaments linear-subulate, broad at the base, white, slightly exceeding the perianth, curved.

TAXONOMIC PROBLEMS: None

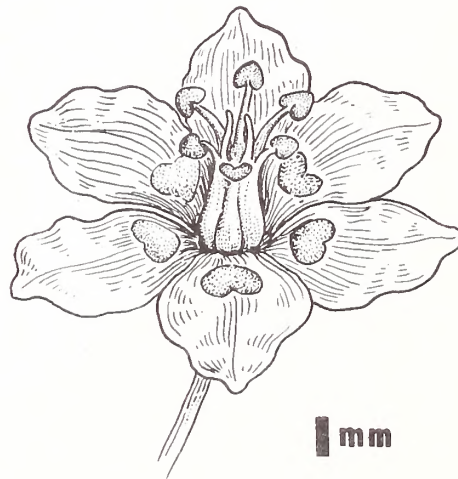
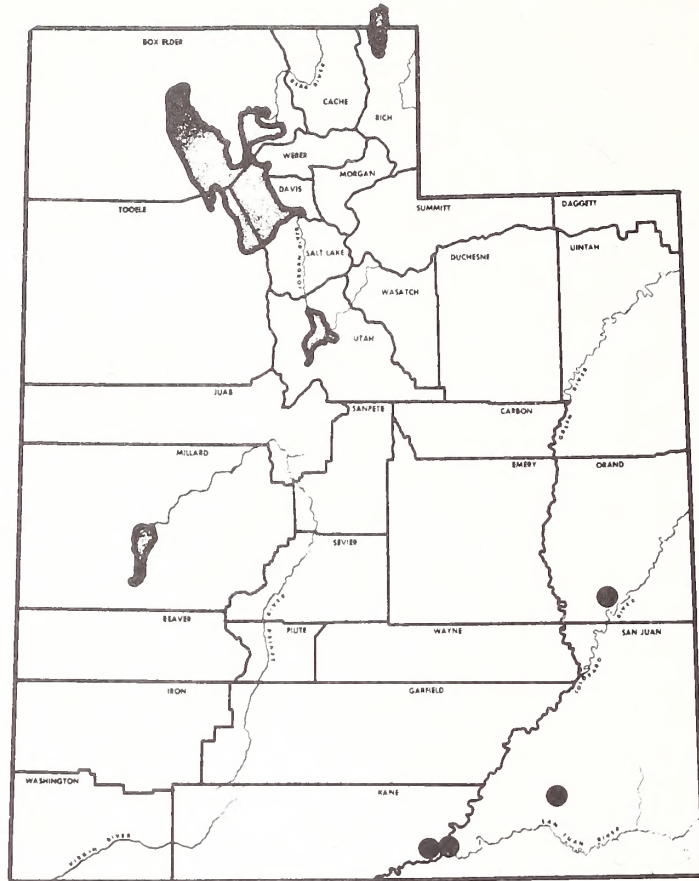
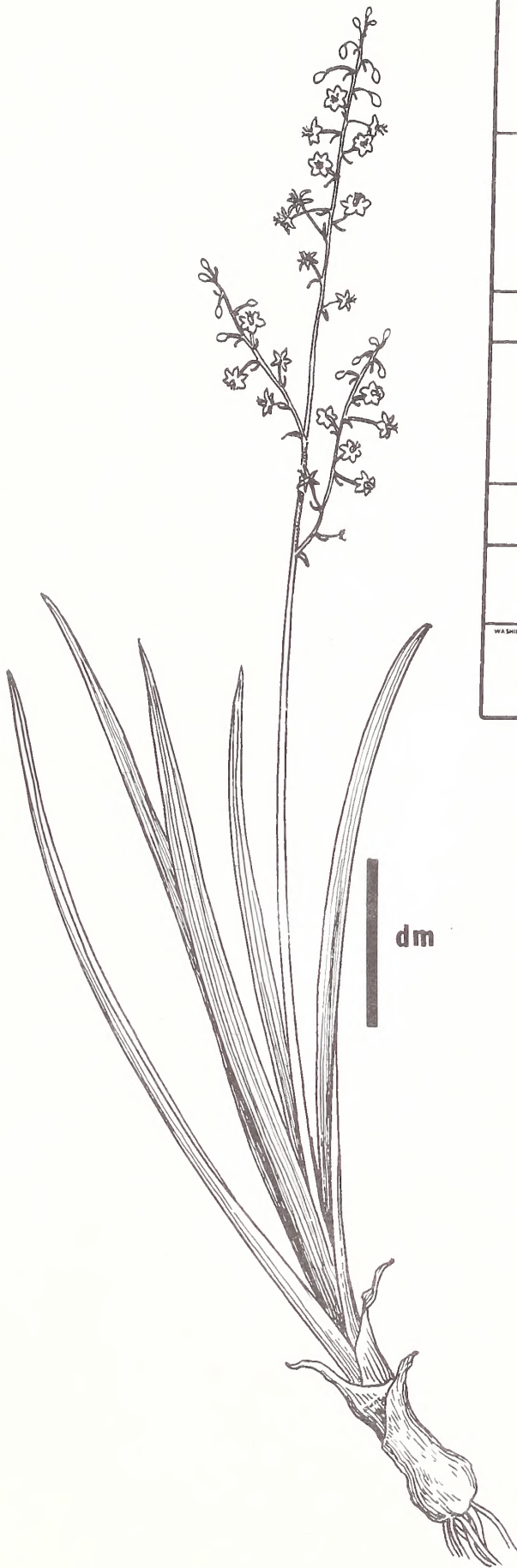
EXISTING OR POTENTIAL THREATS: The rising waters of Lake Powell, and increased visitor use are threats to the habitat of this plant.

LAND OWNERSHIP/MANAGEMENT: National Park Service; Bureau of Land Management

REMARKS: This sheathed death camas is an autumn flowering plant of low elevations.

RECOMMENDATIONS: Total range, numbers and sizes of populations, and reproductive mechanisms should be investigated.

Zigadenus vaginatus



SCIENTIFIC NAME: Mentzelia argillosa J. Darlington

FAMILY: Loasaceae

CITATION: Ann. Missouri Bot. Gard. 21: 153. 1934.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Clay blazing-star

KNOWN DISTRIBUTION: Sevier and Sanpete cos., Utah

HABITAT: Arapien Shale Formation, clay soil; salt desert shrub community

ELEVATION: 5600 feet (1708 m)

DESCRIPTION: Plants perennial, 2-3 dm tall; stems numerously branched, glabrous, white; leaves sessile, entire, ovate-lanceolate, somewhat spatulate above, 2-2.5 cm long, scabrous; flowers yellow, subtended by linear entire bracts; calyx lobes ovate-lanceolate, 8 mm long, margins revolute; petals 6-8 mm long, obovate, apex acuminate; stamens numerous, the filament especially the outer dilated; capsule turbinate, 5-8 mm long, brownish-yellow, punctate.

TAXONOMIC PROBLEMS: None

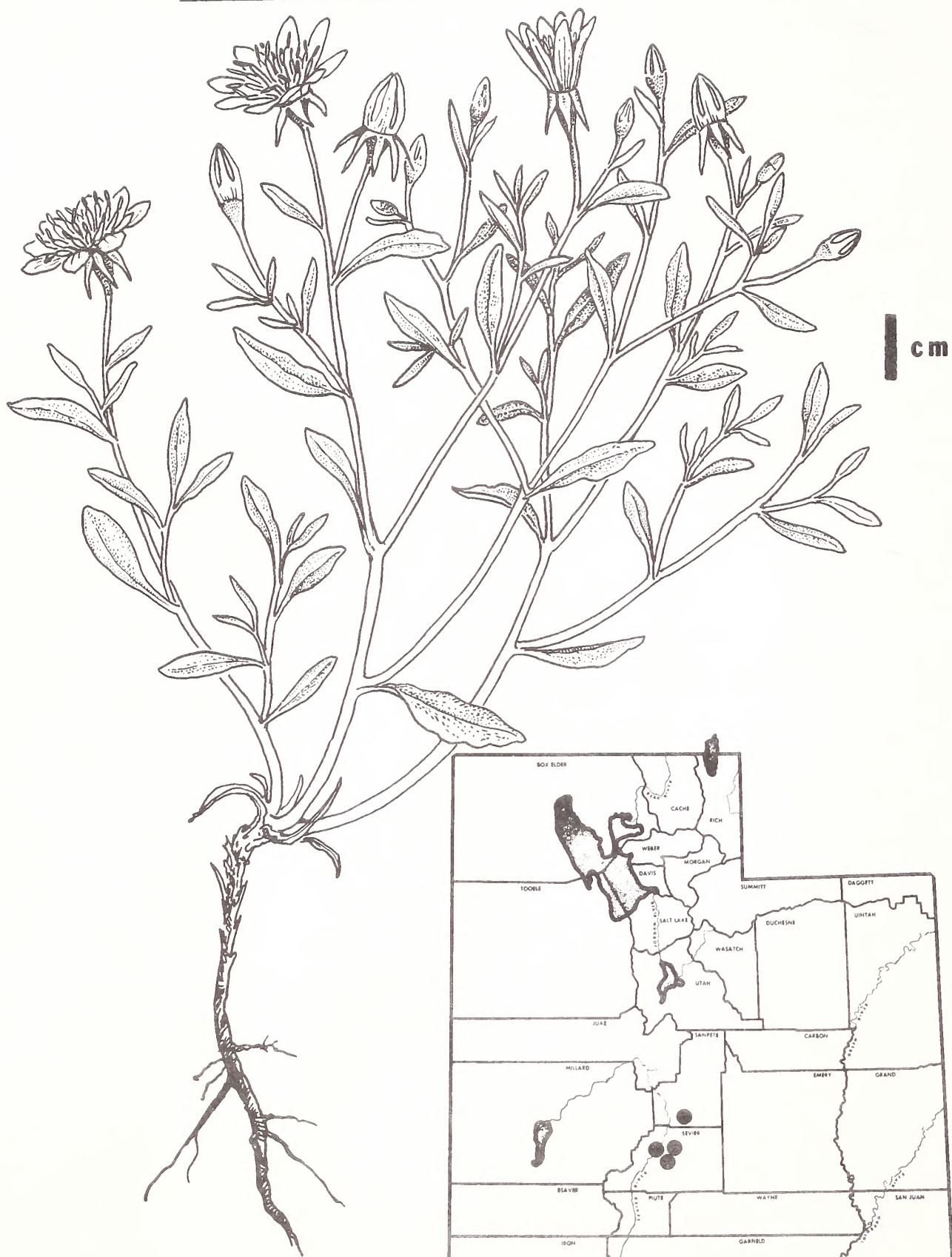
EXISTING OR POTENTIAL THREATS: Exploitation of gypsum and trampling are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; private

REMARKS: The clay blazing-star is an obligate gypsophile of central Utah.

RECOMMENDATIONS: The species should be regarded as threatened.

Mentzelia argillosa



SCIENTIFIC NAME: Sphaeralcea caespitosa M. E. Jones

FAMILY: Malvaceae

CITATION: Contr. W. Bot. 12: 4. 1908.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Jones globe mallow

KNOWN DISTRIBUTION: Beaver and Millard cos., Utah

HABITAT: Sevy Dolomite, rocky calcareous soil; mixed shrub, pinyon-juniper, and grass community

ELEVATION: 5000 to 6500 feet (1525 to 1983 m)

DESCRIPTION: Plants perennial, caespitose from a thick woody caudex; herbage densely stellate pubescent throughout; stems slender, erect, 5-15 cm high, simple; flowers axillary with 2 or 3 in a terminal cluster; leaves cuneate-ovate or cuneate-obovate, blade 2-3.5 cm long, about equal to the petiole; margins incisely serrate, sometimes obscurely 3-lobed, palmately veined; stipules linear, entire, 0.5-1.5 cm long; bractlets filiform, 6 mm long on base of calyx; calyx 1.5-2 cm long; corolla salmon red, 1.5-2 cm long; fruit depressed globose; seeds scabrous, reniform, without cusps.

TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Changes in the land use, industrial expansion, and mineral exploration are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; U. S. Forest Service; Utah State (?)

REMARKS: This remarkable low species is restricted to limestone and dolomite outcrops and to gravels derived from them.

RECOMMENDATIONS: The species should be regarded as threatened.

Sphaeralcea caespitosa



SCIENTIFIC NAME: Najas caespitosa (Maguire) Reveal

FAMILY: Najadaceae

CITATION: Great Basin Naturalist 35: 357. 1976.

SYNONYMS: Najas flexilis (Willd.) Rostk. and Schmidt ssp. caespitosa Maguire
(Rhodora 44: 7. 1942.)

STATUS: Proposed as endangered, Federal Register, 16 June 1976. Recommended
as threatened by S. L. Welsh, 1978.

COMMON NAME: Fish Lake naiad

KNOWN DISTRIBUTION: Sevier Co., Utah

HABITAT: Fresh water lake, water 1-3 dm deep, sand gravel bottom

ELEVATION: 8600 feet (2623 m)

DESCRIPTION: Stems stout, densely branching throughout, 0.2-0.4 dm long, unarmed; leaves narrowly linear, 0.3-1 cm long, entire, rarely with a few scattered minute spines, leaf sheath with an obliquely sloping shoulder, margin entire expanding to a sheath, 2-3 mm long and wide at the base; plants monoecious, the staminate flowers 2-2.5 mm long, with a single anther, 1-celled, the pistillate flowers 2-2.5 mm long, usually 3 stigmas of slightly uneven length; fruits 2-2.5 mm long, narrowly elliptic, seed smooth and shiny but finely reticulate with 30-40 rows of minute areolae.

TAXONOMIC PROBLEMS: Related to the N. flexilis complex, N. caespitosa is distinguished by its extreme reduction in plant parts.

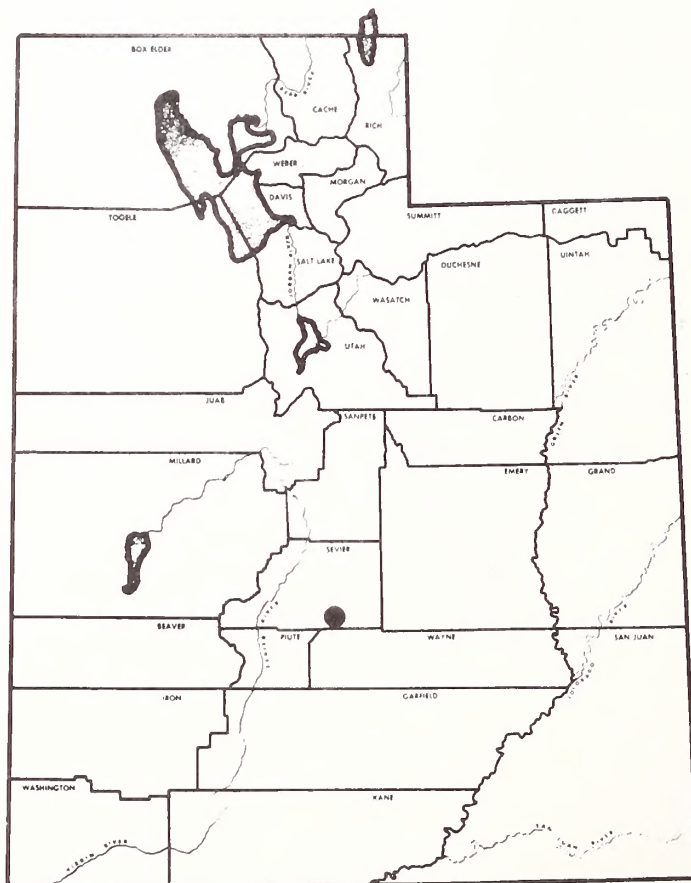
EXISTING OR POTENTIAL THREATS: Possible changes in water quality due to organic wastes are a potential threat to this species.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

REMARKS: The nature of this entity requires additional investigation.

RECOMMENDATIONS: The plant should be regarded as threatened until further information is available.

Najas caespitosa



SCIENTIFIC NAME: Epilobium nevadense Munz

FAMILY: Onagraceae

CITATION: Bull. Torrey Bot. Club 56: 166. 1929.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Nevada willowherb

KNOWN DISTRIBUTION: Washington Co., Utah; Clark Co., Nevada

HABITAT: Talus slopes, rocky outcrops; ponderosa pine and aspen community in pine duff

ELEVATION: 7500 to 9200 feet (2288 to 2806 m)

DESCRIPTION: Plants perennial, from a woody branched prostrate caudex 2.5-3 mm wide; stems slender, erect, simple, yellowish, sometimes purple tinged, 12-25 cm high, leafy throughout; leaves glabrate, glaucescent, denticulate, green or purplish on short pubescent petioles, lower leaf blades oblong-obtuse, opposite, 8-15 mm long, main cauline leaves alternate, somewhat narrower, gradually reduced upward with fascicles of bract-like leaves in axils; leaves of inflorescence reduced; flowers several on each stem, in loose racemes, sessile or on short glandular pedicels; calyx tube glandular without, 3-5 mm long, reddish tubular; corolla violet-purple, 6-7 mm long; capsules subfusiform, glandular pubescent, 8-12 mm long; seeds brown, coma white.

TAXONOMIC PROBLEMS: Related to E. nivium, E. nevadense is easily distinguished by its denticulate glaucescent leaves.

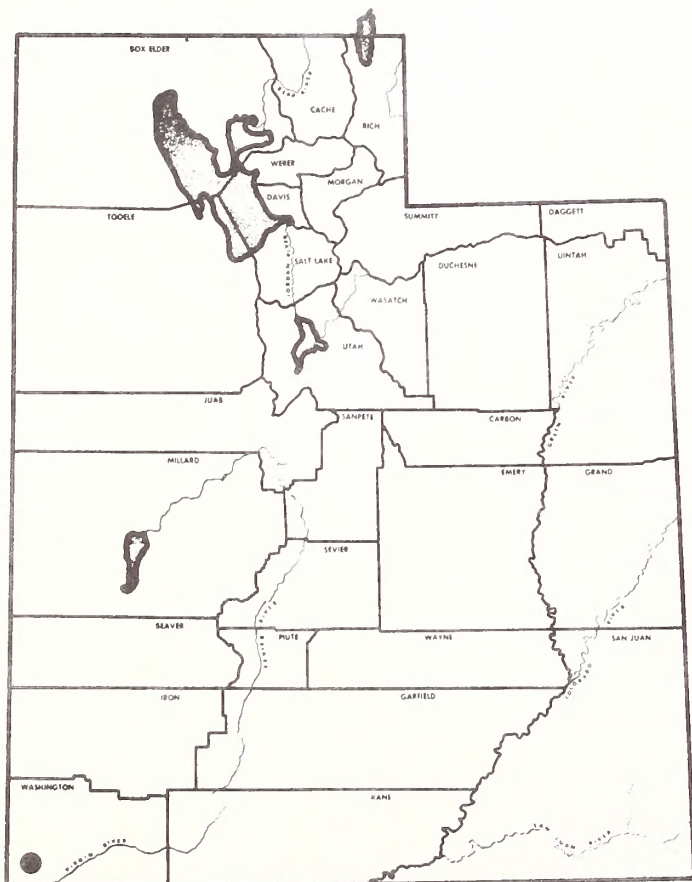
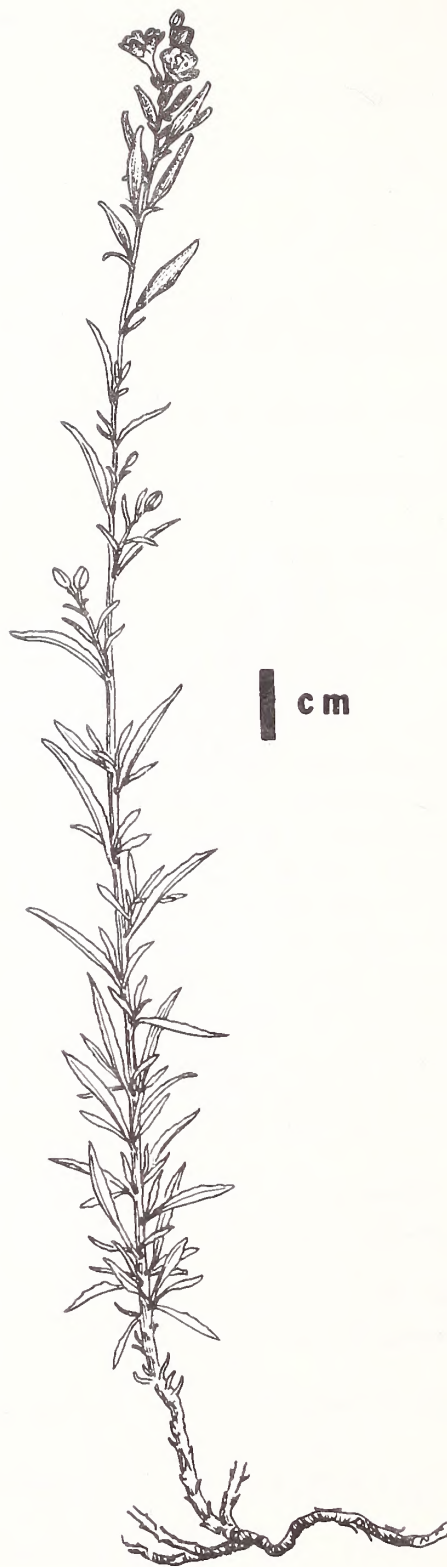
EXISTING OR POTENTIAL THREATS: Road construction and mineral exploration are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management

REMARKS: This species is very narrowly restricted in Utah and in Nevada.

RECOMMENDATIONS: The Nevada willowherb should be treated as threatened.

Epilobium nevadense



SCIENTIFIC NAME: Arctomecon humilis Coville

FAMILY: Papaveraceae

CITATION: Proc. Biol. Soc. Wash. 7: 67. 1892.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, July 1, 1975. Proposed as endangered, Federal Register, June 16, 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Coville bearclaw poppy

KNOWN DISTRIBUTION: Washington Co., Utah; Mohave Co., Arizona

HABITAT: Moenkopi Formation, on alluvium and sandy clay soil, rolling low hills, bluffs; warm desert shrub community, open desert.

ELEVATION: 2300 to 3000 feet (702 to 915 m)

DESCRIPTION: Plant a perennial herb from a thick woody caudex, branching into a caespitose base, 6-8 cm high; leaves cuneate-oblongate, 2-5 cm long, tridentate at the apex, sparsely covered with long spreading lanate hairs below, glaucous above, upper leaves sessile; peduncles several, 12-15 cm tall, glabrous, much branched; flowers white, obcordate, 2-2.5 cm long, persistent; anthers yellow, stigma black, fruit a capsule, obovate, 1-1.5 cm long.

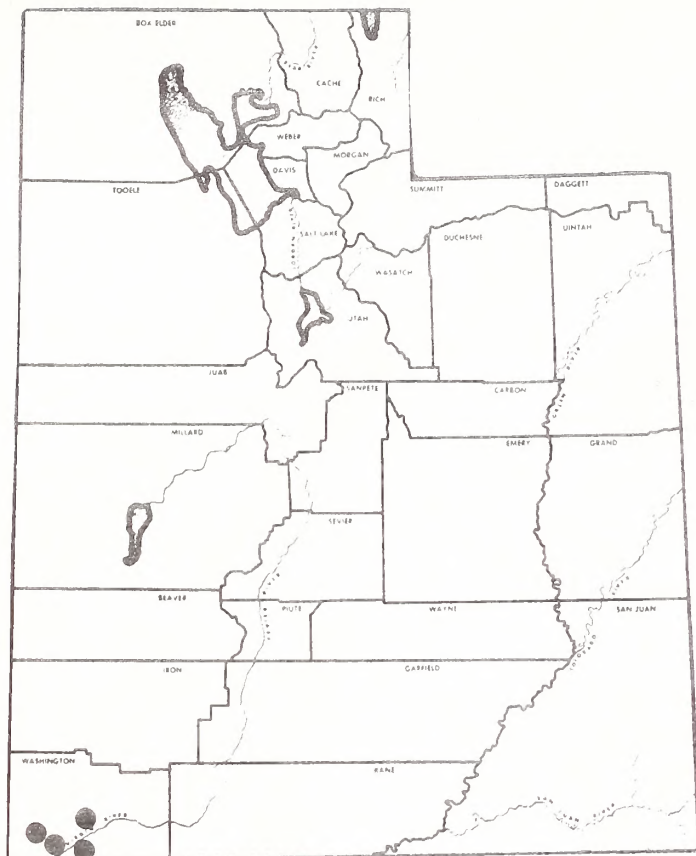
TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Industrial development is slated for the region generally.

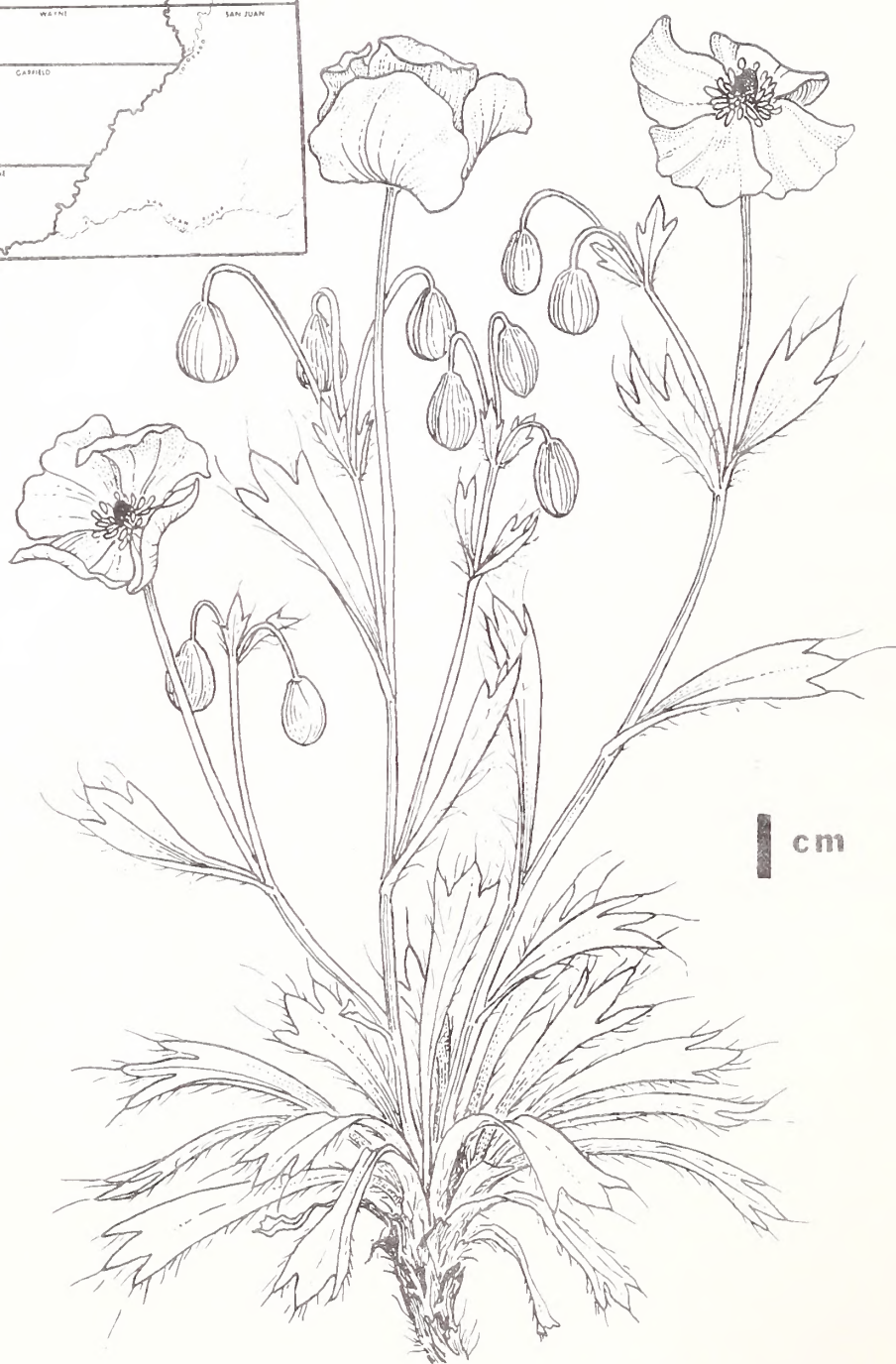
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management, Bureau of Indian Affairs, Shivwits Indian Reservation

REMARKS: A. humilis is endemic to the Dixie Corridor and is found only on the Moenkopi Formation.

RECOMMENDATIONS: This plant should be regarded as endangered.



Arctomecon humilis



SCIENTIFIC NAME: Festuca dasyclada Hackel

FAMILY: Poaceae

CITATION: Grasses N. Amer. 2: 602. 1896.

SYNONYMS: None

STATUS: Proposed as endangered, Federal Register, 16 June 1975. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Sedge fescue

KNOWN DISTRIBUTION: Emery (?) and Sanpete cos., Utah; Garfield Co., Colorado

HABITAT: Green River Shale (?) and Flagstaff Limestone formations, rocky slopes; subalpine community

ELEVATION: 9000 feet (2745 m)

DESCRIPTION: Plant perennial; culms erect or somewhat geniculate, 2-4 dm tall, nearly smooth; sheaths glabrous, ligules short, blades narrow, soft, folded, glabrous, acute, 5-15 cm long; panicles open, erect, ciliate on the prominent angles; spikelets 6-7 mm long, usually 2-flowered, pale green, glumes scabrous to puberulent, the first glume 3-4.5 mm long, narrow by lanceolate, 3-nerved; lemmas 5-6 mm long, lanceolate, green membranous, 5-nerved, slightly keeled, scabrous-puberulent all over the back, awns 2.5-3 mm long; palea about the length of the lemma; anthers about 2 mm long.

TAXONOMIC PROBLEMS: None

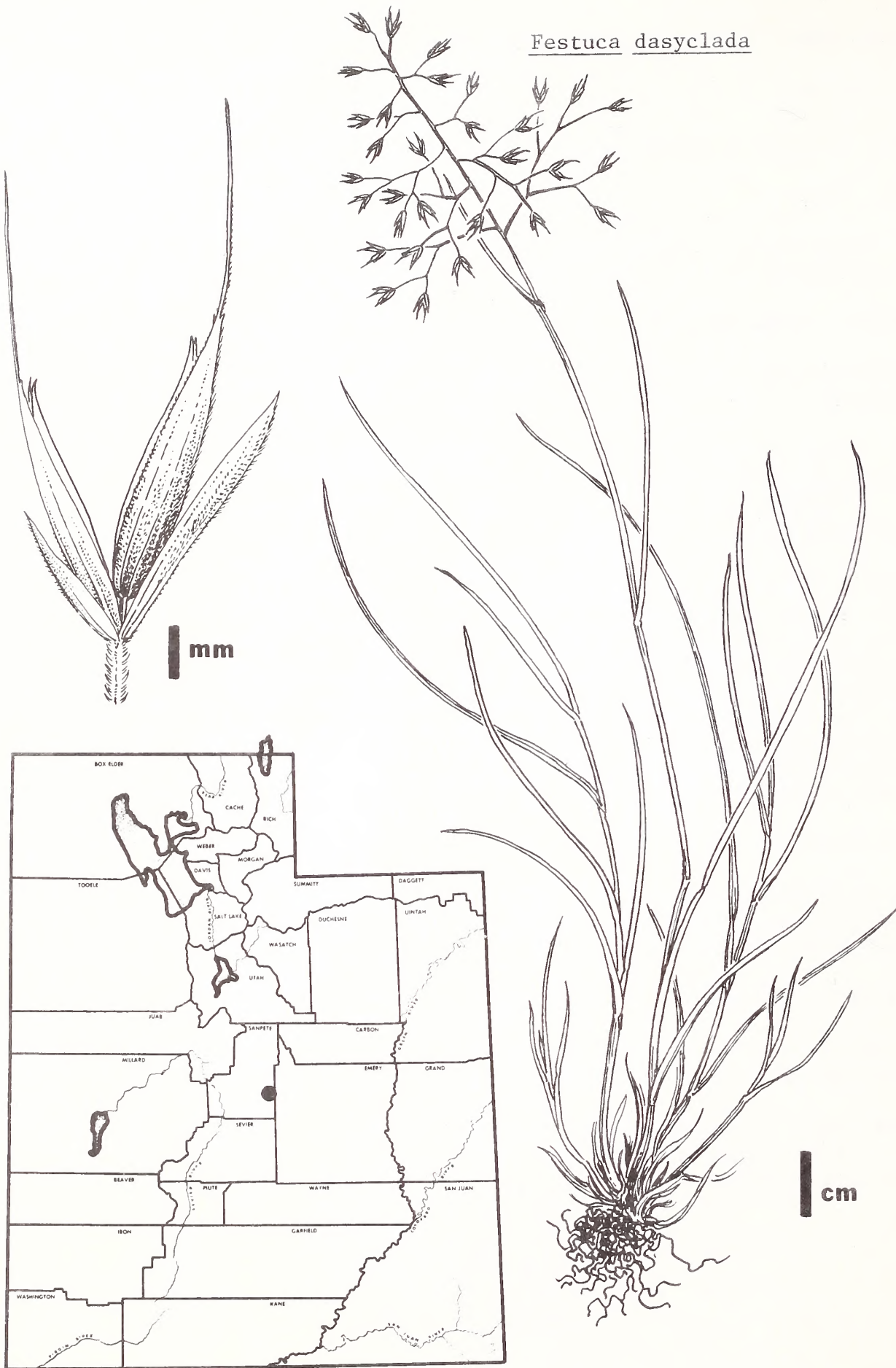
EXISTING OR POTENTIAL THREATS: The Utah population has not been relocated, thus, potential threats are unknown. The Colorado population is on Green River oil shale.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

REMARKS: This remarkable grass species is apparently restricted to limestone and calcareous shales. It should be relocated.

RECOMMENDATIONS: The sedge fescue should be regarded as endangered until such a time as it is established as either extirpated or more common than currently indicated.

Festuca dasyclada



SCIENTIFIC NAME: Gilia caespitosa A. Gray

FAMILY: Polemoniaceae

CITATION: Proc. Amer. Acad. Arts and Sci. 12: 80. 1876.

SYNONYMS: Gilia grayi A. Nels. (Bull. Torrey Bot. Club 25: 547. 1898.)
Navarretia caespitosa A. Gray (O. Ktze. Rev. Gen. 2: 433. 1891.)

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, June 16, 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Rabbit Valley gilia

KNOWN DISTRIBUTION: Wayne Co., Utah

HABITAT: Navajo Sandstone, Carmel Limestone formations, white talus slopes, limestone detritus; pinyon-juniper community

ELEVATION: 7200 to 8500 feet (2196 to 2593 m)

DESCRIPTION: Plants caespitose perennials from a branching caudex, mat-forming, glandular pubescent throughout; stems to 1 dm long with reduced cauline leaves; leaves radical, thickened, spatulate to subspatulate; inflorescence somewhat lax, with 3-5 flowers, each terminating a branch; flowers red, the limb rotate; stamens and pistil included; fruit a capsule.

TAXONOMIC PROBLEMS: None

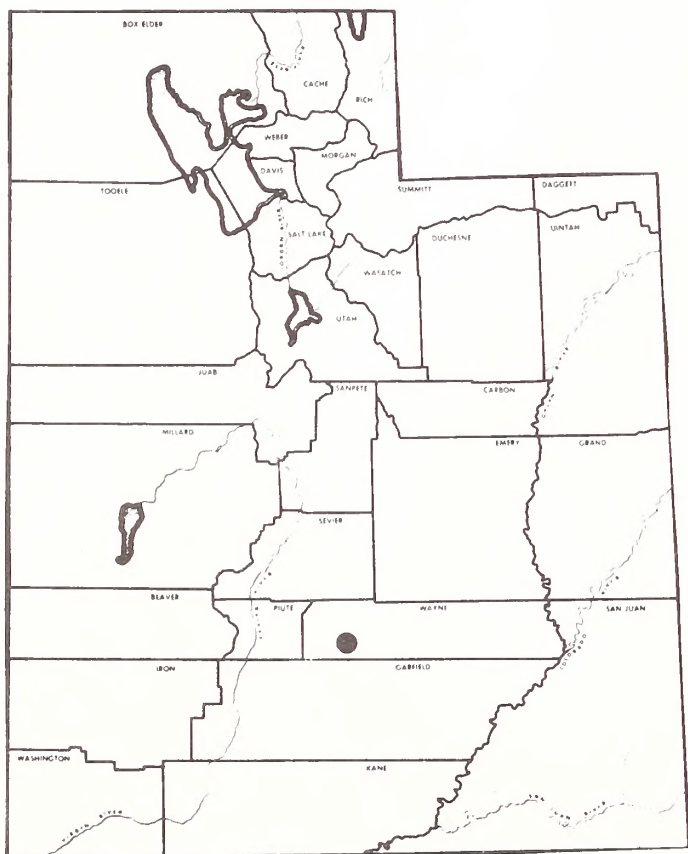
EXISTING OR POTENTIAL THREATS: The entire area occupied by this plant is staked with mineral claims.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

REMARKS: Though described more than a century ago this plant was only rediscovered in the 1960's. The species is unique in the genus.

RECOMMENDATIONS: This plant should be considered endangered.

Gilia caespitosa



SCIENTIFIC NAME: Phlox cluteana A. Nels.

FAMILY: Polemoniaceae

CITATION: Amer. J. Bot. 28: 24. 1922.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Navajo Mountain phlox

KNOWN DISTRIBUTION: San Juan Co., Utah; Apache, Coconino and Navajo cos., Arizona

HABITAT: Navajo Sandstone Formation, dry gravelly soil; ponderosa pine community

ELEVATION: 6000 to 10,388 feet (1830 to 3169 m)

DESCRIPTION: Plants perennial; stems several from a woody caudex, slender, simple, 1 dm tall, herbage glandular pubescent throughout except for glaucous lower leaves; leaves linear to broadly linear, 1-3 cm long, somewhat coriaceous; pedicels 4-10 mm long, slender; calyx 8-12 mm long, lobes slender, slightly keeled; corolla pink, drying whitish, tube about twice as long as the calyx, lobes obovate, 12-14 mm long.

TAXONOMIC PROBLEMS: Related to P. longifolia, P. cluteana has a broader limb, flatter leaves, soft pubescence and slender stems which make it easily distinguishable.

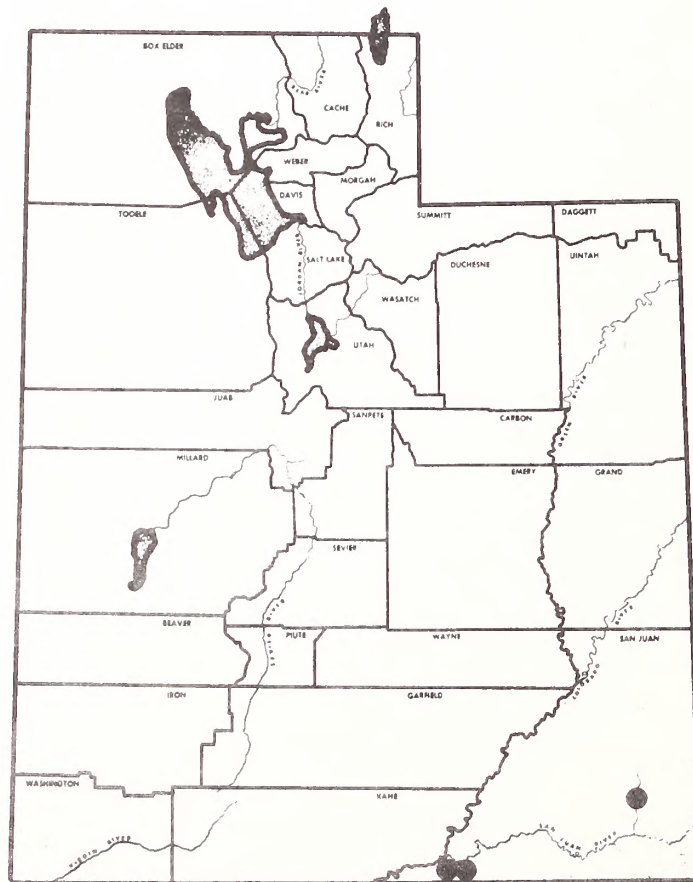
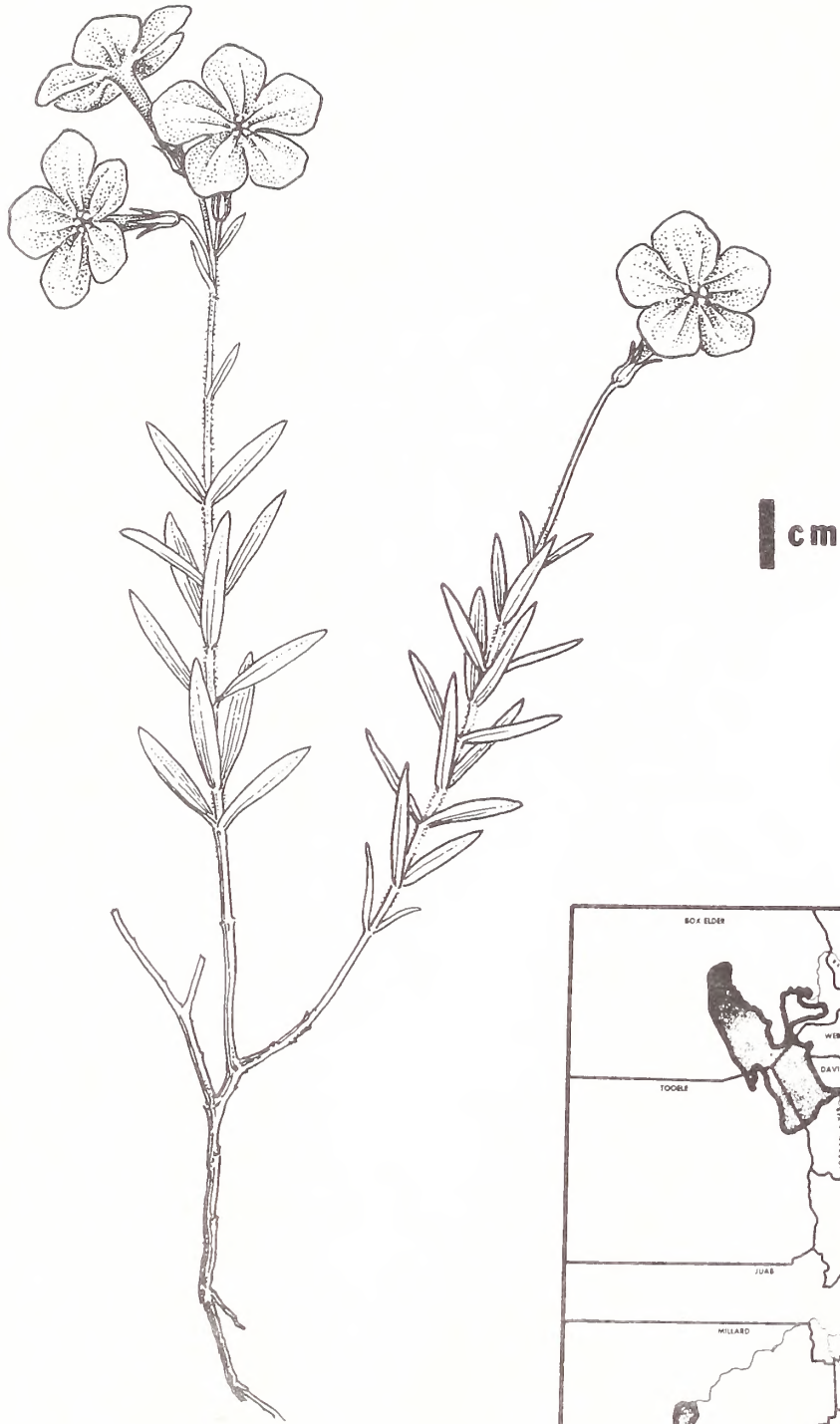
EXISTING OR POTENTIAL THREATS: Potential changes in the land use is a threat to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Indian Affairs

REMARKS: This is a species of forest floors.

RECOMMENDATIONS: Treat the Navajo Mountain phlox as threatened.

Phlox cluteana



SCIENTIFIC NAME: Phlox gladiformis (M. E. Jones) E. Nels.

FAMILY: Polemoniaceae

CITATION: Rev. West N. Amer. Phloxes 21. 1899.

SYNONYMS: Phlox longifolia Nutt. var. gladiformis M. E. Jones (Proc. Calif. Acad. Sci. II 5: 711. 1895.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Red Canyon phlox

KNOWN DISTRIBUTION: Garfield, Iron, Washington cos., Utah

HABITAT: Pink Limestone Member of the Wasatch Formation, heavy clay soil, gravelly; scattered yellow pine forest community

ELEVATION: 6000 to 8000 feet (1830 to 2440 m)

DESCRIPTION: Loosely caespitose with prostrate spreading stems, softly pubescent and slightly glandular throughout; leaves somewhat thick and rigid, midribs prominent, margins revolute, lance-linear, pungent, 15-20 mm long, 2 mm wide; flowers sessile or subsessile; calyx sinuses moderately replicate, teeth longer than the tube; corolla white, tube pubescent, limb 14 mm across; style less than one half the length of the corolla tube.

TAXONOMIC PROBLEMS: Related to P. kelseyi, southern Wyoming, P. gladiformis differs in the sessile flowers, pubescent corolla tube and short style.

EXISTING OR POTENTIAL THREATS: Industrial development (railroads, pipeline, transmission corridors) and mineral exploration and exploitation are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; U. S. Forest Service; private

REMARKS: The Red Canyon phlox appears to be an obligate calciphile.

RECOMMENDATIONS: The species should be regarded as threatened.

SCIENTIFIC NAME: Eriogonum ammophilum Reveal

FAMILY: Polygonaceae

CITATION: Phytologia 23: 163. 1972.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1978. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Sand-loving buckwheat

KNOWN DISTRIBUTION: Millard Co., Utah

HABITAT: Quaternary alluvium, sandy soil; desert shrub community

ELEVATION: 5270 feet (1595 m)

DESCRIPTION: Plants perennial, low shrubs, erect and spreading, 2-4 dm high, 2.5 dm across; caudices woody, deeply buried in sand, upper branches herbaceous, glabrous and glaucous; leaves alternate and congested on lower part of branches just above sand, elliptic to broadly elliptic, 1-2.5 cm long, 8-17 mm wide, densely white tomentose below, subglabrous and green above, apex obtuse, base rounded, deciduous (plants leafless at maturity); petiole slender, lanate; inflorescence cymose, trichotomous at first node, dichotomous above, glabrous and glaucous; involucre solitary, turbinate, 3-3.5 mm long; flowers white with a reddish midrib and base, 2-3 mm long, stamens slightly exserted, red to purple.

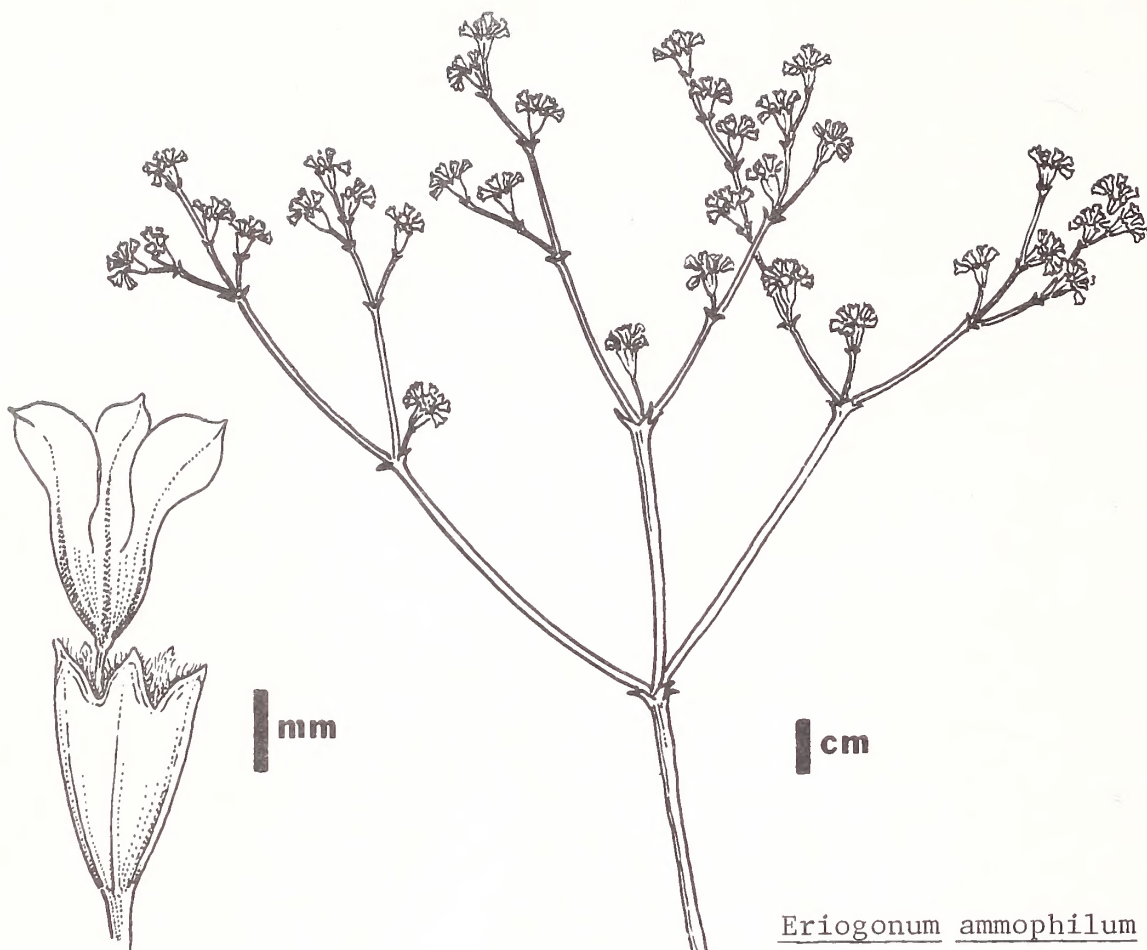
TAXONOMIC PROBLEMS: E. ammophilum is related to E. kearneyi but is distinguished by its glabrous stems and clustered leaves.

EXISTING OR POTENTIAL THREATS: Potential industrial development and electric generating stations and ancillary facilities are threats to this species.

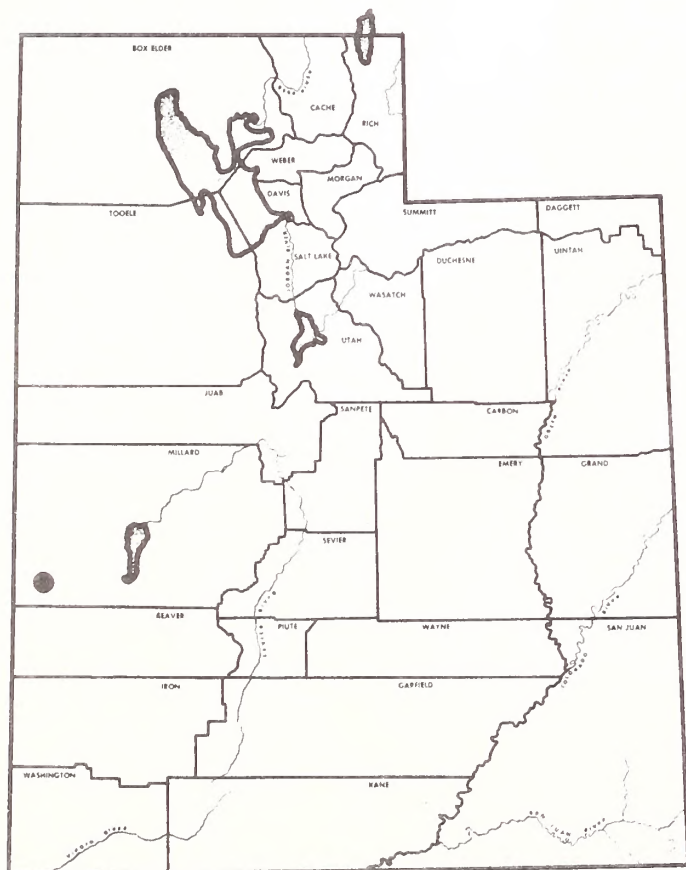
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Desert Range Experimental Station; Utah State

REMARKS: The total area occupied by this species is in doubt. Further exploration is indicated.

RECOMMENDATIONS: This plant should be regarded as endangered.



Eriogonum ammophilum



SCIENTIFIC NAME: Eriogonum aretioides Barneby

FAMILY: Polygonaceae

CITATION: Leaf1. W. Bot. 5: 154. 1949.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Widtsoe buckwheat

KNOWN DISTRIBUTION: Garfield Co., Utah

HABITAT: Pink Limestone Member of the Wasatch Formation, dry ridge tops, limestone outcrops, thin rocky soil; scattered pinyon-juniper and western bristle cone pine community.

ELEVATION: 7500 to 8000 feet (2288 to 2440 m)

DESCRIPTION: Low caespitose pulvinate perennials with 20-30 rosettes of leaves forming flat to rounded mats, 1-4 dm across; leaves oblanceolate to elliptic or spatulate, 3-8 mm long, 2-4 mm wide, tomentose, margin slightly thickened; petiole 2-5 mm long; stems scapose, tomentose, erect; inflorescence reduced to single involucre; involucre campanulate, villous; flowers yellow, about 2 mm long, densely pilose without, glabrous within; achene brown, 2 mm long.

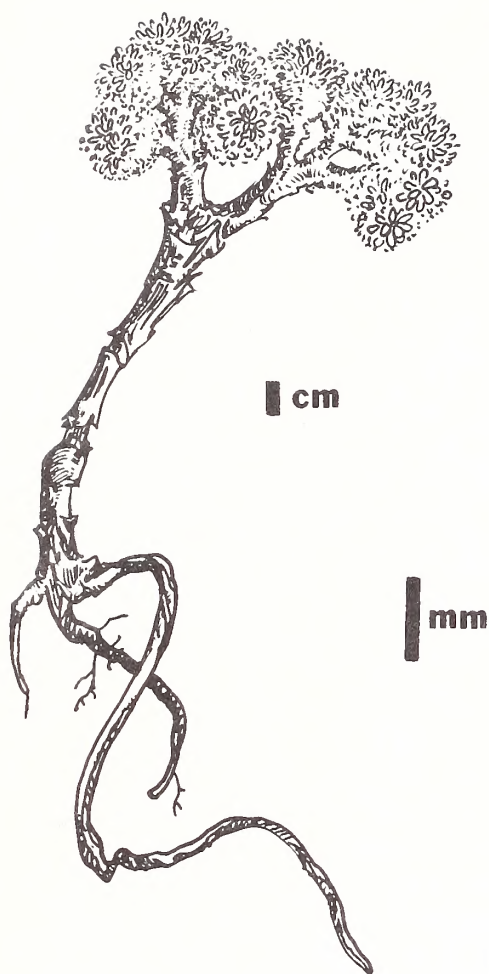
TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: E. aretioides is threatened by the use of limestone for industrial purposes and the potential development of a railroad through the type locality.

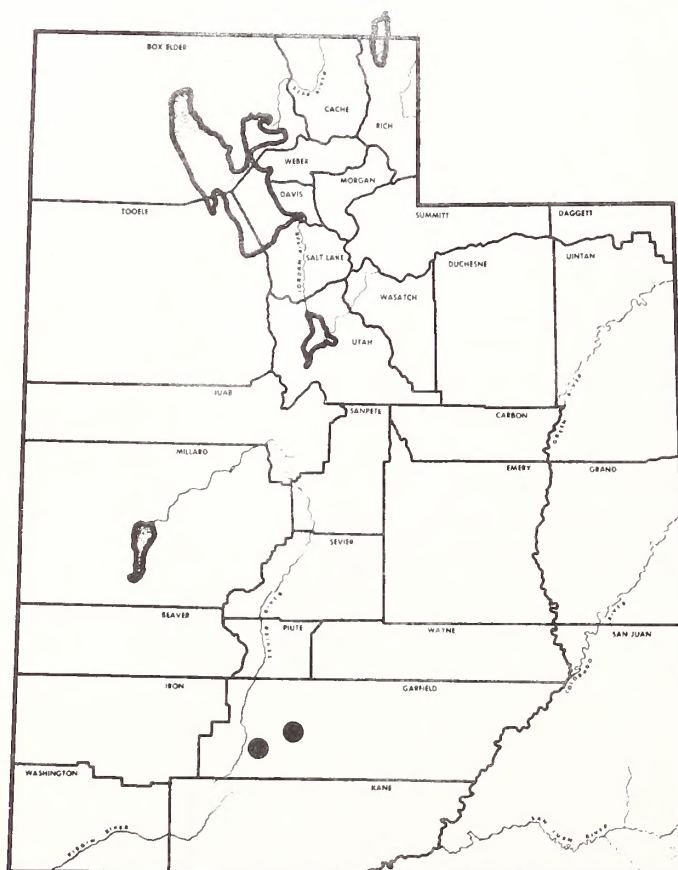
LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

REMARKS: This is a calciphile restricted to the limestones bordering Johns Valley and Red Canyon near Bryce Canyon National Park.

RECOMMENDATIONS: Portions of the Pink Limestone Member of the Wasatch Formation should be preserved from development of any kind, thus insuring the perpetuity of this low calciphile.



Eriogonum aretioides



SCIENTIFIC NAME: Eriogonum clavellatum Small

FAMILY: Polygonaceae

CITATION: Bull. Torrey Bot. Club 25: 48. 1898.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Comb Wash buckwheat

KNOWN DISTRIBUTION: San Juan Co., Utah; Montezuma Co., Colorado

HABITAT: Moenkopi Formation, clay or sandy clay slopes; desert shrub community

ELEVATION: 3300 to 4500 feet (1007 to 1373 m)

DESCRIPTION: Low rounded subshrubs, 1-2 dm high, 3-8 dm across; leaves oblanceolate, 5-15 mm long, 2 mm wide, densely white tomentose below, thinly pubescent and green above, becomes glabrous, margin tightly revolute; petiole 0.5-1.5 mm long; stems 0.6-2 cm long, usually glabrous; inflorescences umbellate-cymose, glabrous; involucre turbinate-campanulate, 4-4.5 mm long, glabrous; flowers white with reddish-brown midribs and bases, 3-3.5 mm long, glabrous; tepals dimorphic, outer whorl broadly obovate to fan-shaped, inner oblanceolate and slightly shorter; achenes light brown.

TAXONOMIC PROBLEMS: None

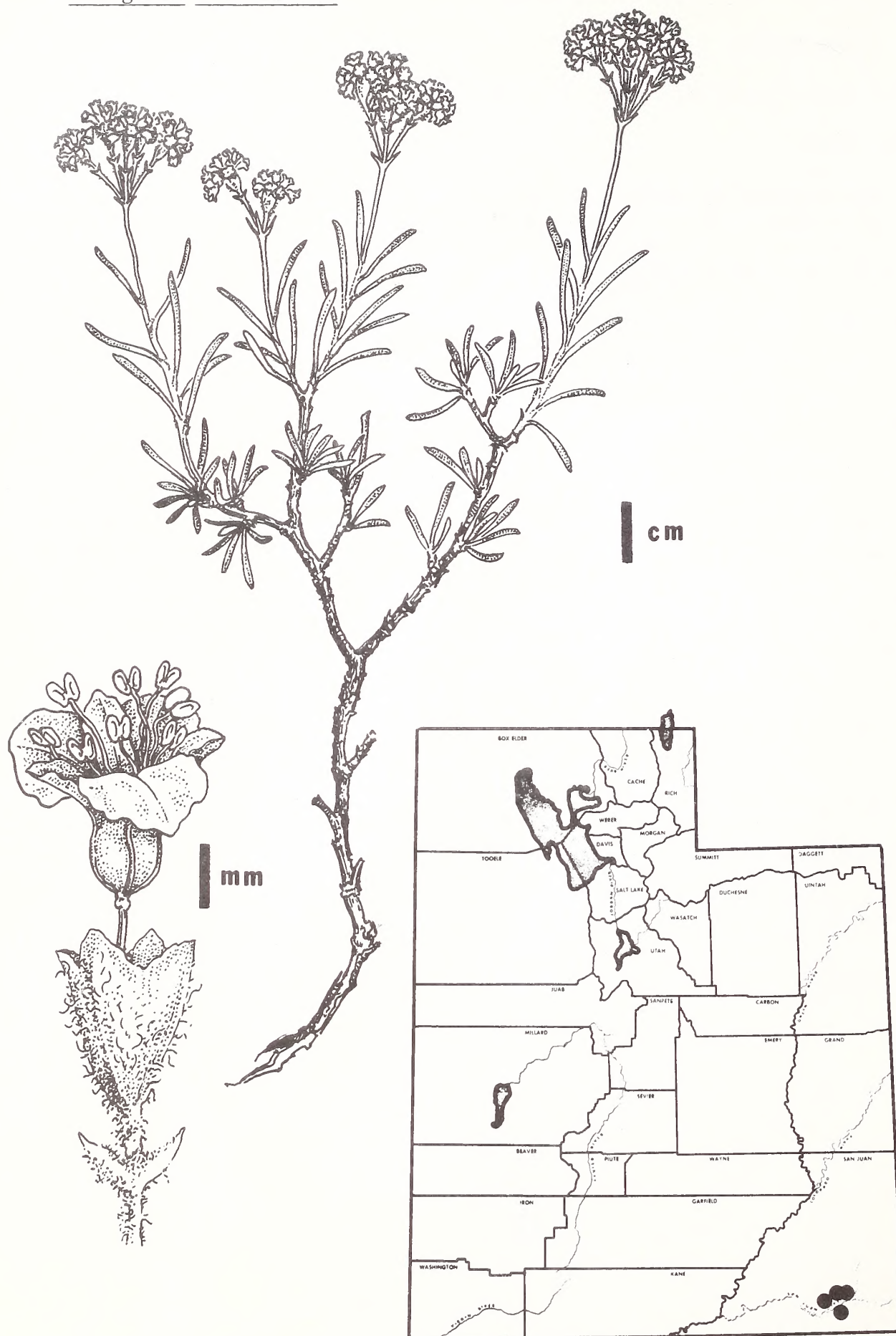
EXISTING OR POTENTIAL THREATS: Mineral exploration, highway realignment, and industrial development are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management

REMARKS: The plants are evidently restricted to mud and siltstone, and to colluvium derived from strata consisting of those parent materials.

RECOMMENDATIONS: The Comb Wash buckwheat should be regarded as threatened.

Eriogonum clavellatum



SCIENTIFIC NAME: Eriogonum corymbosum Benth. var. davidsei Reveal

FAMILY: Polygonaceae

CITATION: Great Basin Naturalist 27: 216. 1967.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, July 1, 1975. Proposed as endangered, Federal Register, June 16, 1976. Recommended as endangered by S. L. Welsh.

COMMON NAME: Davidse buckwheat

KNOWN DISTRIBUTION: Carbon Co., Utah

HABITAT: Mancos Shale Formation, desert shrub community, clay soil on steep hillside.

ELEVATION: 5500 feet (1678 m)

DESCRIPTION: Large shrubby spreading plants 8-12 dm high, 20 dm across, silvery tomentose throughout; leaves lanceolate to elliptic, 3-4 cm long, densely tomentose below, less dense and whitish green above, blades thin and lax; inflorescence compact, branches dense, 3-6 cm long; involucres 2.5-3 mm long; perianth brownish white with thin indistinct midribs.

TAXONOMIC PROBLEMS: This plant is related to E. corymbosum var. erecta, but it is distinguished by its ecological requirements. These plants are found only on the Mancos Shale Formation.

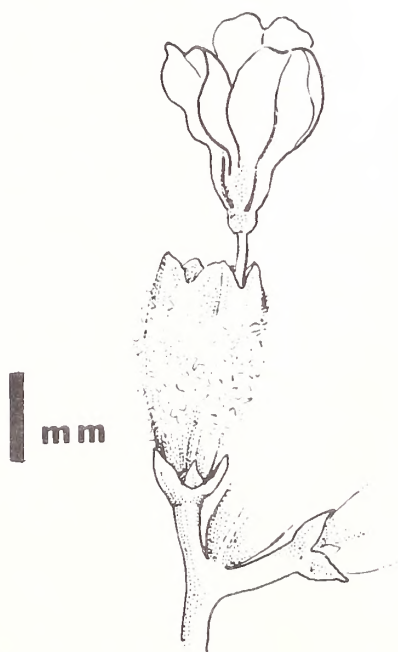
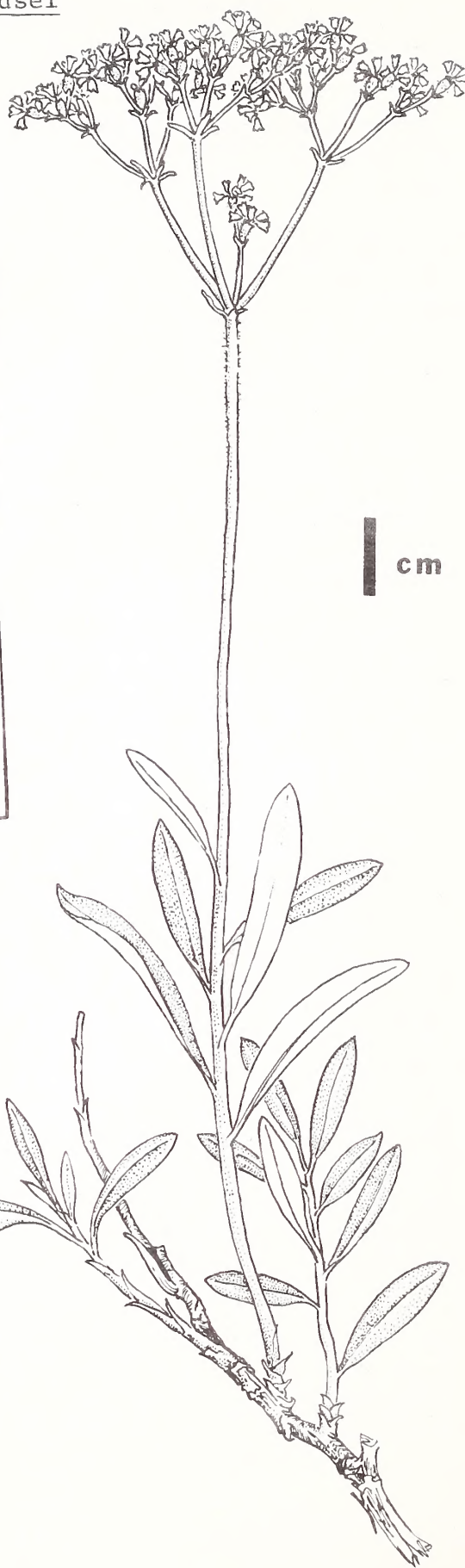
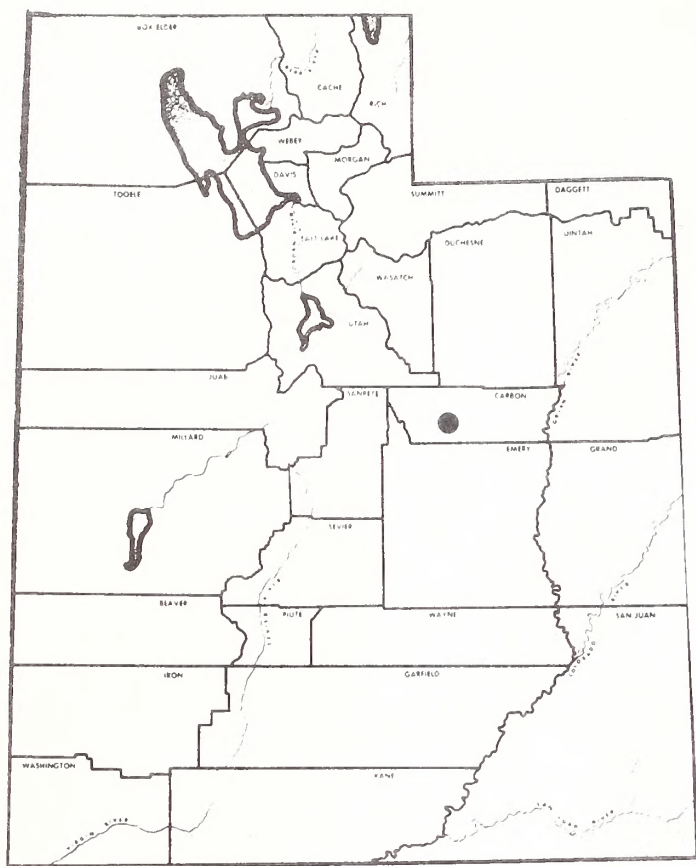
EXISTING OR POTENTIAL THREATS: Industrial development is proposed for the area occupied by this plant.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management

REMARKS: The type locality is in an area slated for industrial development.

RECOMMENDATIONS: The size of the population needs to be determined and management techniques studied.

Eriogonum corymbosum var. davidsei



SCIENTIFIC NAME: Eriogonum corymbosum Benth. var. matthewsae Reveal

FAMILY: Polygonaceae

CITATION: Phytologia 34: 441. 1976.

SYNONYMS: None

STATUS: Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Matthews buckwheat

KNOWN DISTRIBUTION: Washington Co., Utah

HABITAT: Chinle Formation, purplish siltstone and sandy loam soil

ELEVATION: 3800 to 4000 feet (1159 to 1220 m)

DESCRIPTION: Plant perennial, low spreading shrub, or subshrub, 3-11 dm tall, 1.5 m across; leaves broadly elliptic, 2-3 cm long, 1-1.5 cm wide, densely white lanate beneath, subglabrous above, margin entire; stems glabrous; inflorescence cymose, glabrous; involucre turbinate, 2-3 mm long, glabrous; flowers white, with reddish midribs, 2.5-3.5 mm long, glabrous, tepals oblanceolate to spatulate, the inner tepals slightly narrower; achenes brown.

TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: The only known locality of this plant is being developed as a residential area.

LAND OWNERHIP/MANAGEMENT: Private

REMARKS: This is a boldly beautiful plant when in full flower.

RECOMMENDATIONS: The plant should be considered as endangered.

SCIENTIFIC NAME: Eriogonum corymbosum Benth. var. revealianum (Welsh)
Reveal

FAMILY: Polygonaceae

CITATION: Great Basin Naturalist 35: 327. 1975.

SYNONYMS: Eriogonum revealianum Welsh (Great Basin Naturalist 30: 17.
1970).

STATUS: Proposed as endangered, Federal Register, 16 June 1976.
Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Reveal buckwheat

KNOWN DISTRIBUTION: Garfield and Piute cos., Utah

HABITAT: Along the East Fork of the Sevier River, igneous gravel;
sagebrush community

ELEVATION: 6500 to 7200 feet (1983 to 2196 m)

DESCRIPTION: Shrubby perennial, 1.5-3 dm tall, with few to many erect to ascending branches from woody caudices; leaves on lower, 3-10 cm of annual branches, blades lance-oblong to oblong-elliptic, 1.5-3 cm long, entire crenulate, more or less revolute, densely whitish tomentose below, densely to moderately tomentose above; stems densely cobwebby-tomentose; peduncles densely to moderately tomentose; bracts scale-like; inflorescence cymose with 2-4 main branches; involucre sessile or subsessile, turbinate, 2-4 mm long, tomentose externally; flowers 2-4 mm long, whitish or pinkish with green, pink or red midribs; achene greenish.

TAXONOMIC PROBLEMS: A variety of E. corymbosum, Reveal buckwheat is unique in having a short leafy stem and elongated naked peduncles.

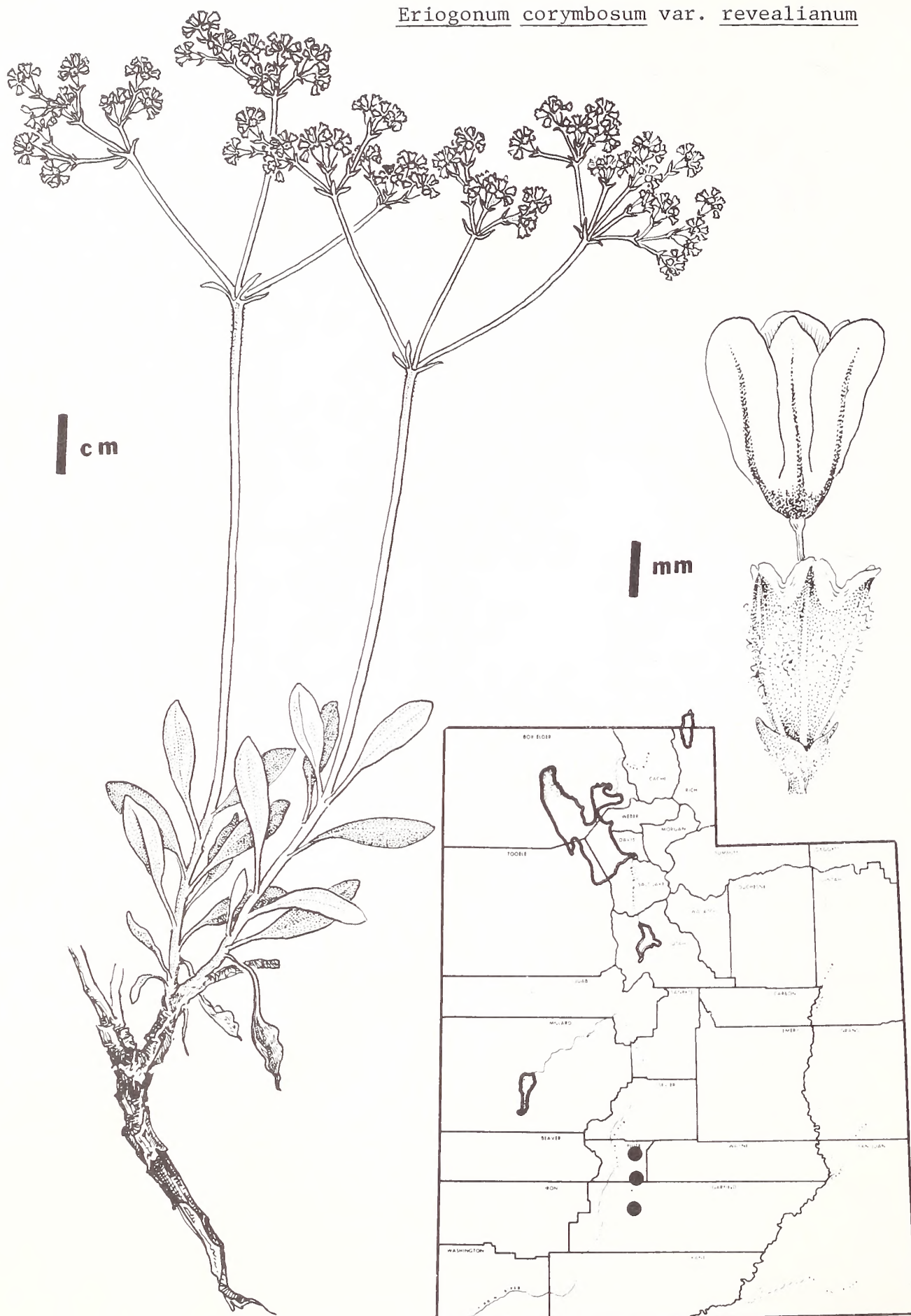
EXISTING OR POTENTIAL THREATS: Railroad construction, access road, changes in land use are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management

REMARKS: The Reveal buckwheat is a plant of moderate elevations along the lower reaches of the East Fork of the Sevier River.

RECOMMENDATIONS: This species should be regarded as threatened.

Eriogonum corymbosum var. revealianum



SCIENTIFIC NAME: Eriogonum cronquistii Reveal

FAMILY: Polygonaceae

CITATION: Madroño 19: 289. 1969.

SYNONYMS: None

STATUS: Proposed as endangered, Federal Register, 16 June 1976.
Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Cronquist buckwheat

KNOWN DISTRIBUTION: Garfield Co., Utah

HABITAT: Loose decomposed granitic talus slopes, gravelly soil; mountain shrub community

ELEVATION: 8300 to 9250 feet (2523 to 2776 m)

DESCRIPTION: Plants perennial from matted, branched, spreading woody caudex, 1-1.5 dm high; leaves basal and sheathing up the stems; leaves elliptical with crenulate margins, 0.5-2 cm long, 4-10 mm wide, densely white-tomentose below, subglabrate and green above; petioles 3-8 mm long tomentose; stems glabrous and glaucous except for the tomentose leaf base; bracts scale-like; inflorescence open cymes, dichotomously or trichotomously branched; involucre sessile, 3 mm long, turbinate, glabrous; perianth white, 2-3 mm long, glabrous, segments equal, oblanceolate with rounded apices; anthers reddish; achene brown.

TAXONOMIC PROBLEMS: This plant is closely related to E. batemanii but can be distinguished by its crenulate leaf margins, larger leaf size and ecological adaptations for growing on steep talus slopes of high elevations.

EXISTING OR POTENTIAL THREATS: Road construction and mineral exploration are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

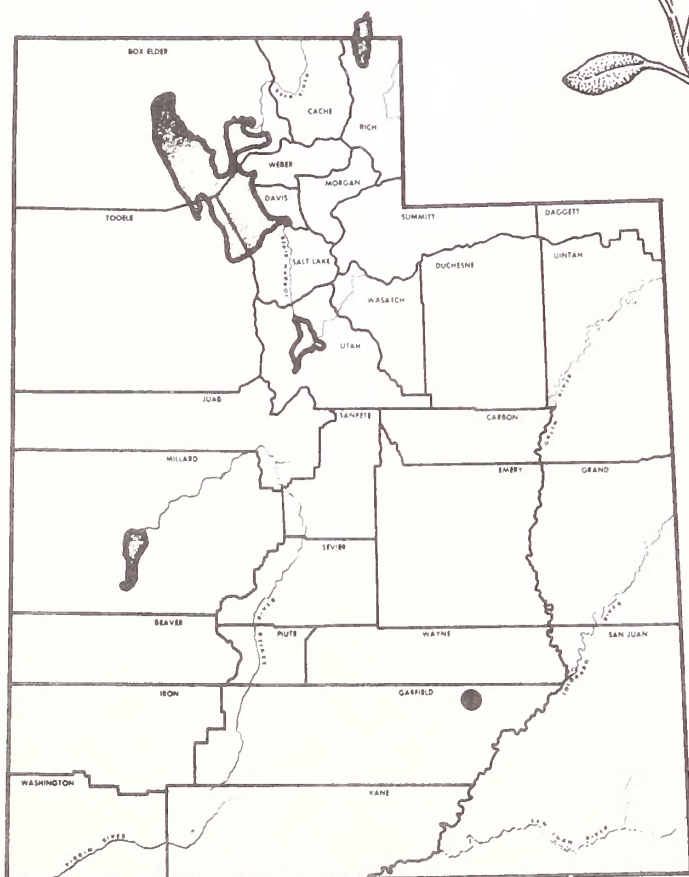
REMARKS: This plant is known only from the type locality.

RECOMMENDATIONS: The plant has not been relocated in recent years and should be regarded as endangered.

Eriogonum cronquistii



cm



SCIENTIFIC NAME: Eriogonum ephedroides Reveal

FAMILY: Polygonaceae

CITATION: Madroño 19: 295. 1969.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Ephedra buckwheat

KNOWN DISTRIBUTION: Uintah Co., Utah; Moffat Co., Colorado

HABITAT: Green River Shale Formation, white shale slopes; desert shrub community

ELEVATION: 5400 to 5600 feet (1647 to 1708 m)

DESCRIPTION: Perennial herb from a gnarled woody branching caudex, 2-3.5 dm high; stems glabrous; leaves strictly basal, lanceolate, densely white tomentose below, subglabrous and green above; stems glabrous and bright green, up to 2 dm long; bracts scale-like; peduncles erect, stout; involucre turbinate, glabrous, 2-2.5 mm long; flowers white to pale yellow, 2-2.5 mm long; achenes brown.

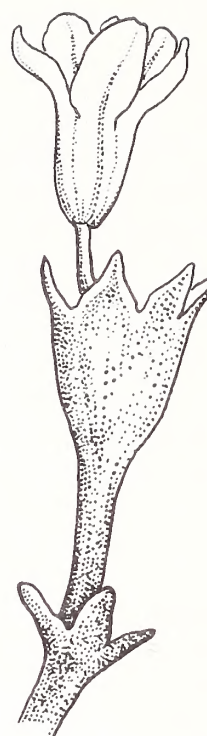
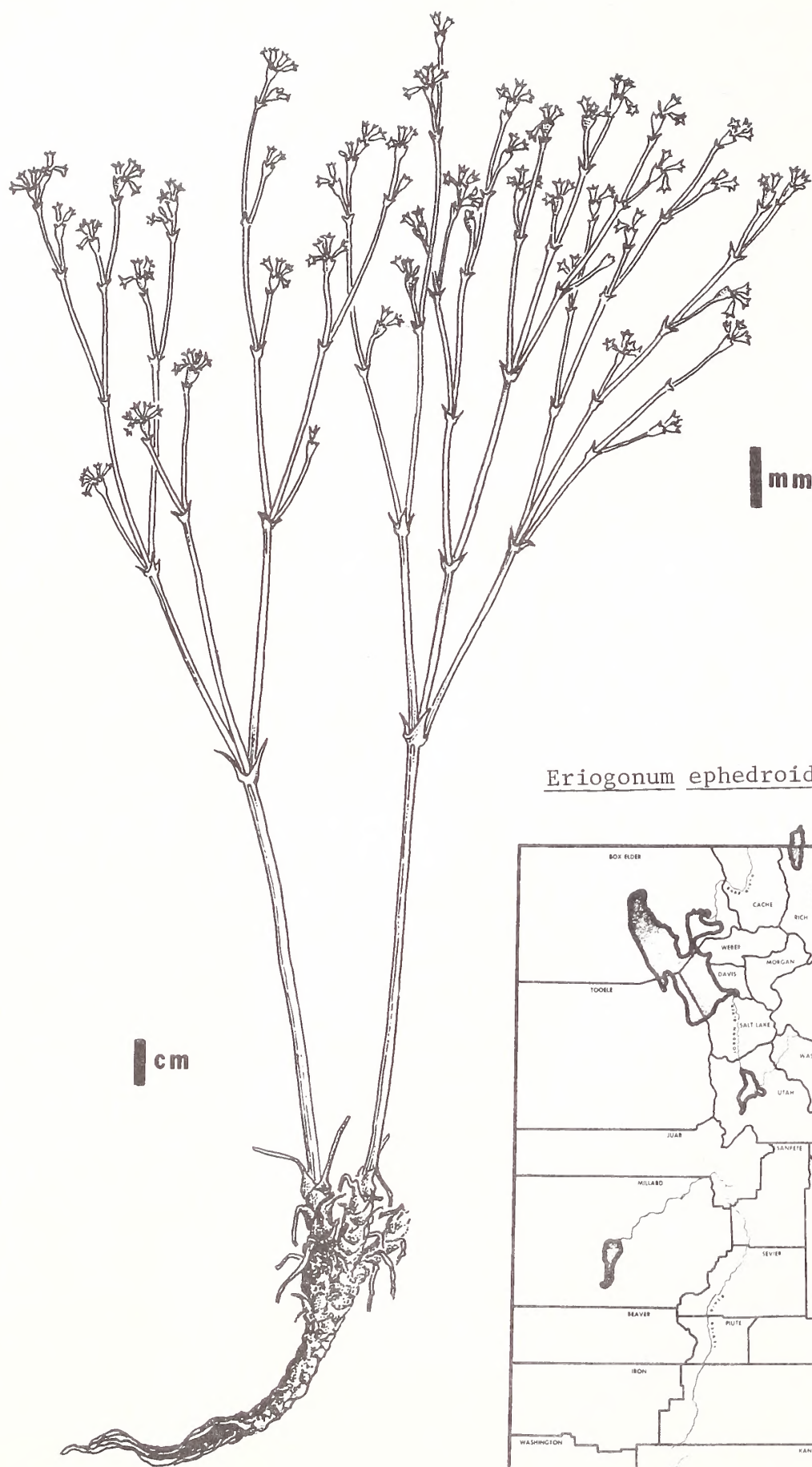
TAXONOMIC PROBLEMS: Related to E. viridulum, E. ephedroides differs in its white or creamy flowers, and broader flat leaves.

EXISTING OR POTENTIAL THREATS: Oil shale development and mineral exploration are threats to this species.

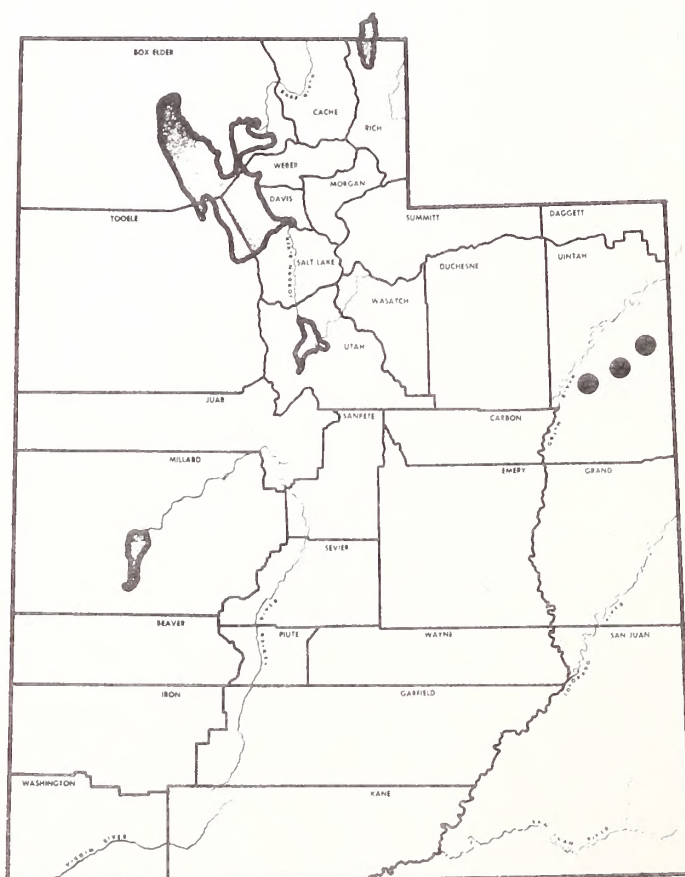
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: The Ephedra buckwheat grows on the Green River Shale Formation with several other narrowly restricted plant species.

RECOMMENDATIONS: This species should be regarded as threatened.



Eriogonum ephedroides



SCIENTIFIC NAME: Eriogonum eremicum Reveal

FAMILY: Polygonaceae

CITATION: Phytologia 23: 165. 1972.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Limestone buckwheat

KNOWN DISTRIBUTION: Millard Co., Utah

HABITAT: Sevy Dolomite gravel, clay and limestone rolling hills and flats; semi-desert shrub community

ELEVATION: 5400 to 6200 feet (1647 to 1891 m)

DESCRIPTION: Spreading herbaceous perennials, 2-4.5 dm high, 1-2.5 dm across; leaves ovate to rounded, 1.2-2 cm long, 1-1.7 cm wide, finely tomentose on both surfaces, margin flat; petiole 1-2.5 cm long; stems erect, 5-20 cm long, glabrous; involucres clustered or infrequently solitary on the same plant, turbinate, 2.5-4 mm long, glabrous; flowers white, 2.5-3 mm long, glabrous; tepals obovate, inner whorl slightly narrower; achene light brown.

TAXONOMIC PROBLEMS: None

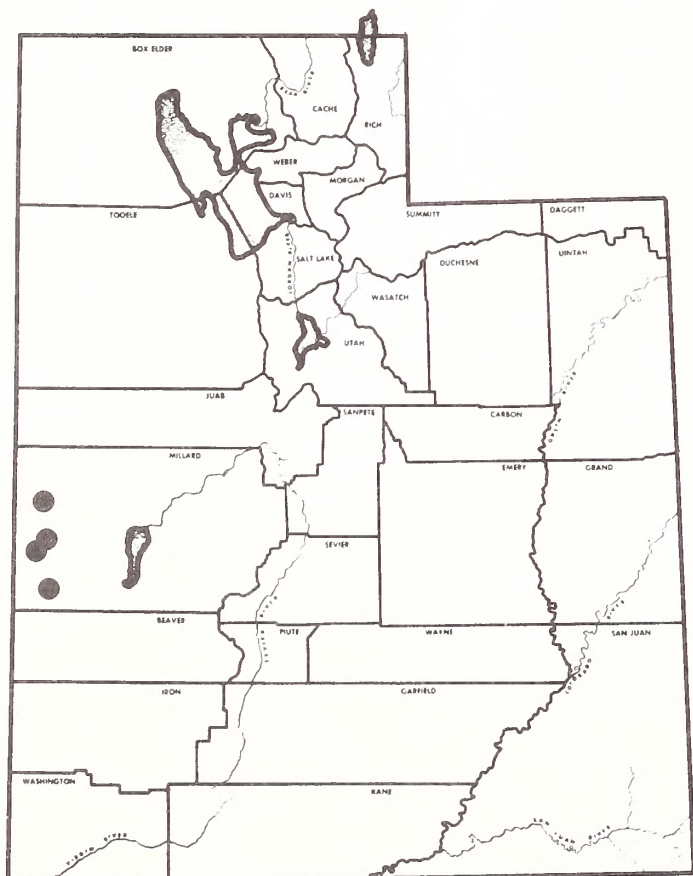
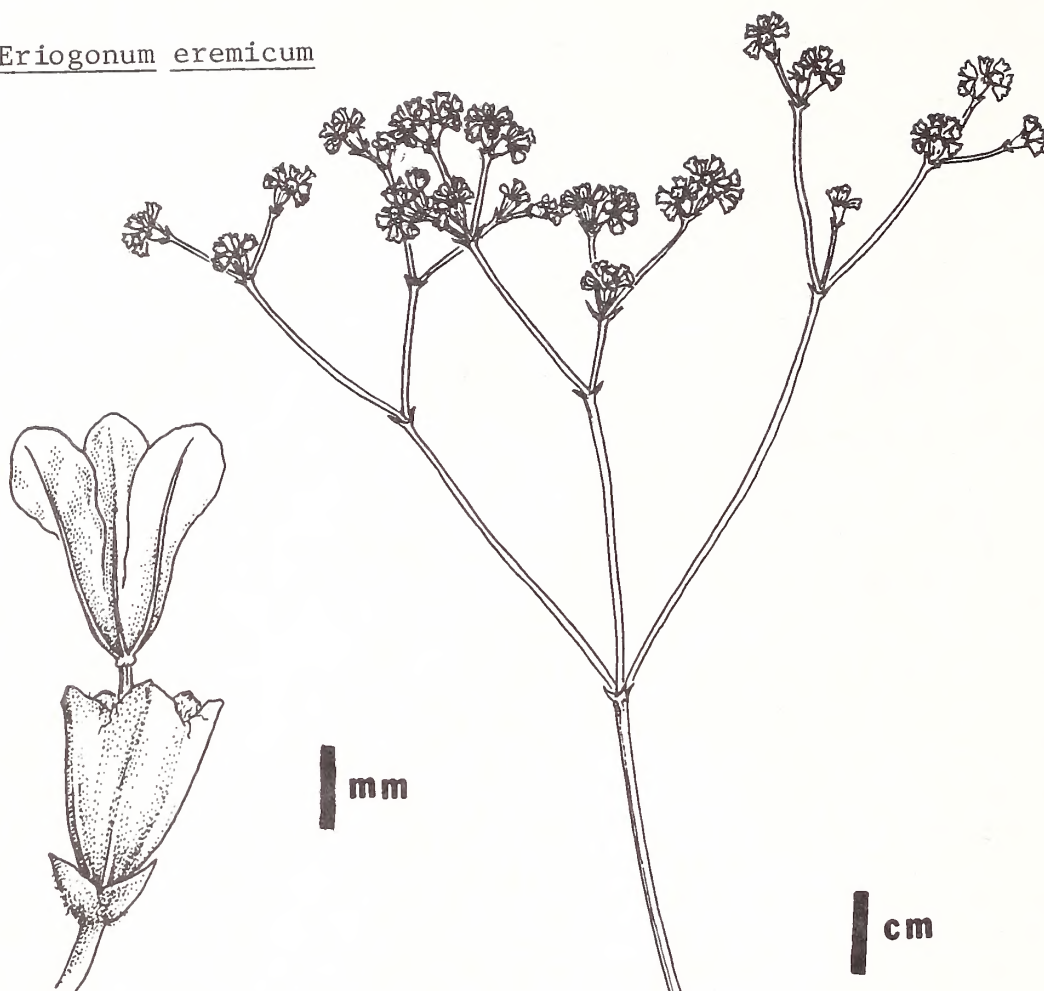
EXISTING OR POTENTIAL THREATS: Mineral exploration, transmission corridor, access road construction, and changes in land use are threats to this plant.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; U. S. Forest Service

REMARKS: This is an apparently obligate calciphile, growing on outcrops of limestones and dolomites.

RECOMMENDATIONS: The species should be regarded as threatened.

Eriogonum eremicum



SCIENTIFIC NAME: Eriogonum humivagans Reveal

FAMILY: Polygonaceae

CITATION: Madroño 19: 291. 1968.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, July 1, 1975. Proposed as endangered, Federal Register, June 16, 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Spreading buckwheat

KNOWN DISTRIBUTION: San Juan Co., Utah

HABITAT: Alluvium clay hills, sandy soil; desert shrub community.

ELEVATION: 6800 feet (2074 m)

DESCRIPTION: Plant a shrubby perennial from a branched woody caudex, 2-3 dm tall; leaves basal, 1.5-3 cm long, oblanceolate, densely white tomentose below, sparsely tomentose and green above; stems glabrous except among the leaves; bracts scale-like; inflorescences open, cymose, somewhat narrow and strict, trichotomously branched, glabrous; involucre sessile, turbinate 3-4 mm long, glabrous ribs distinct; perianth white with reddish-brown midribs; achene light brown.

TAXONOMIC PROBLEMS: This plant is related to E. scoparium Small, but it is distinguished by a more strict inflorescence and the branching pattern is more spreading.

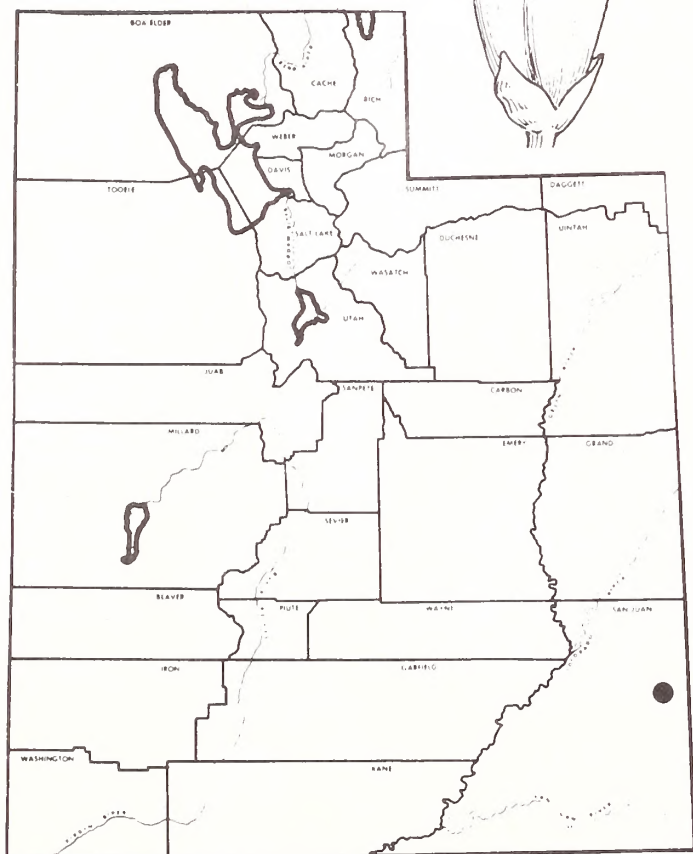
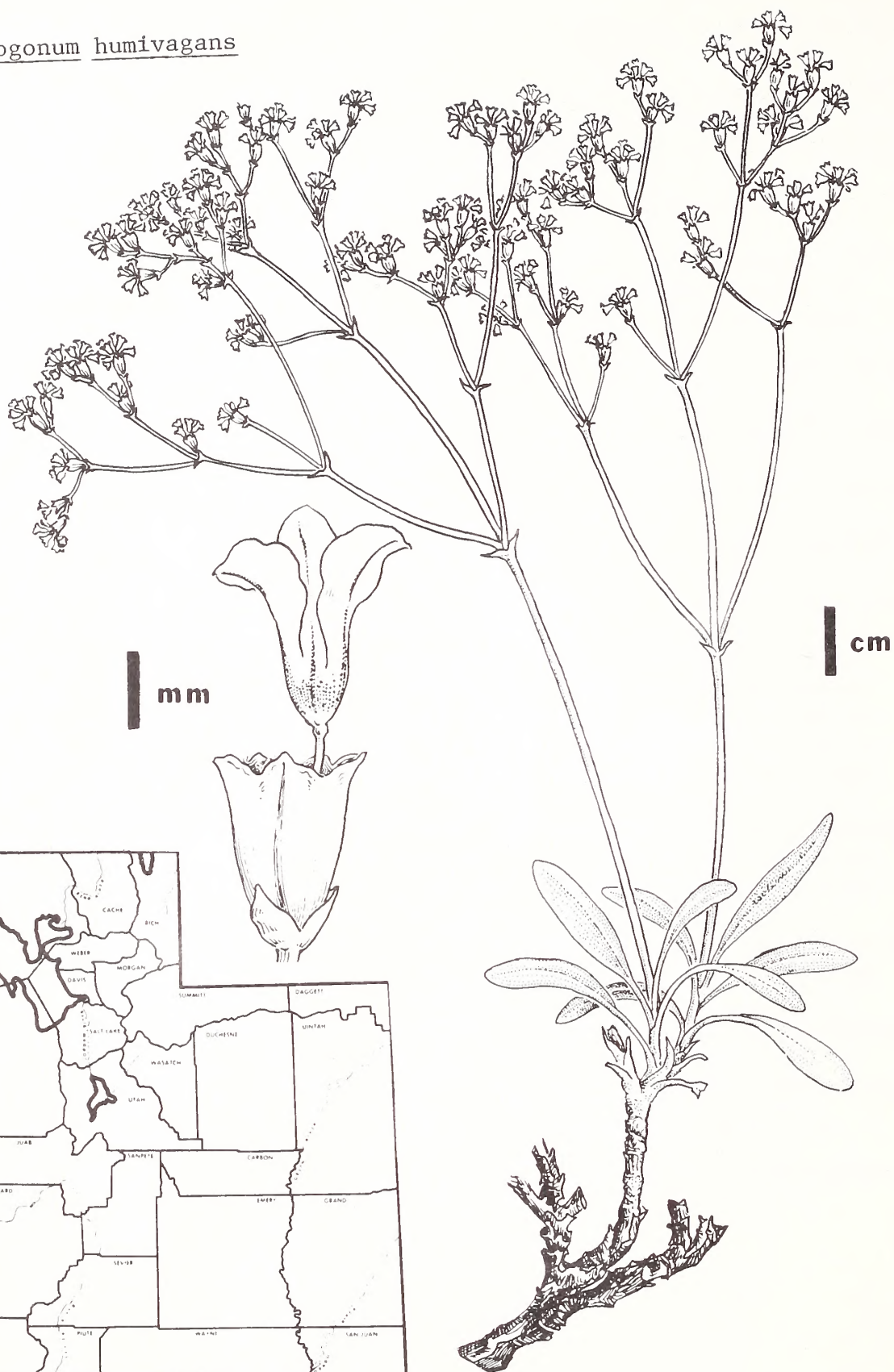
EXISTING OR POTENTIAL THREATS: Survival of this species depends on the management of the roadside community.

LAND OWNERSHIP/MANAGEMENT: Utah State Highway Commission

REMARKS: This plant is known only from one roadside community in an area occupied by dry farms.

RECOMMENDATIONS: This plant should be regarded as endangered.

Eriogonum humivagans



SCIENTIFIC NAME: Eriogonum hylophilum Reveal & Brotherson

FAMILY: Polygonaceae

CITATION: Great Basin Naturalist 27: 190. 1967.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, July 1, 1975. Proposed as endangered, Federal Register, June 16, 1976. Recommended as endangered, S. L. Welsh, 1978.

COMMON NAME: Badlands buckwheat

KNOWN DISTRIBUTION: Duchesne Co., Utah

HABITAT: Green River Shale Formation, deep shale soil; pinyon-juniper, sagebrush community.

ELEVATION: 6500 to 8250 feet (1983 to 2520 m)

DESCRIPTION: Shrubby perennial 2-5 dm tall, forms an open branched crown from a woody caudex; leaves on the lower fourth of the plant; leaves persistent, linear lanceolate to lanceolate, 3.5-7 cm long, densely white tomentose below, less so and green above, margins entire and somewhat revolute, rarely crenulate; petioles long, 5-10 (18) mm, tomentose; bracts sometimes foliaceous (2 cm long) below, scale-like above; inflorescence open; involucre sessile, 1-3 per node, turbinate, tomentose externally; perianth white with greenish midrib, 3-5 mm long; achenes brown.

TAXONOMIC PROBLEMS: As part of the E. corymbosum complex, this plant is probably most closely related to E. duchesnense, but is distinguished by its umbel-like cluster of involucre.

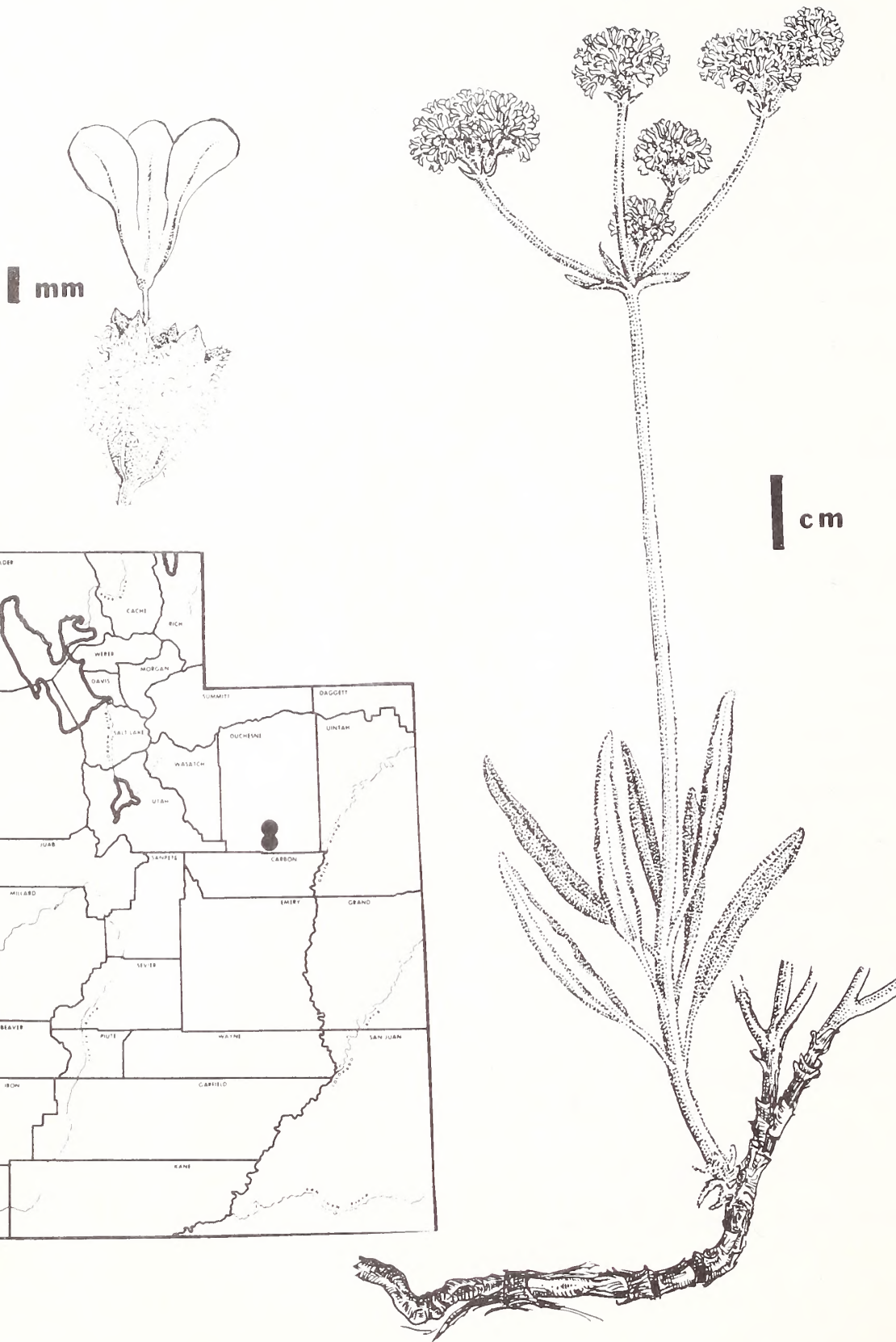
EXISTING OR POTENTIAL THREATS: Highway construction, powerline corridor construction and other activities are potentially destructive to the critical habitat of this plant.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management

REMARKS: This species is intermediate between E. saurinum and E. lancifolium.

RECOMMENDATIONS: This plant should be regarded as endangered.

Eriogonum hylophilum



SCIENTIFIC NAME: Eriogonum intermontanum Reveal

FAMILY: Polygonaceae

CITATION: Madroño 19: 293. 1969.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Divide buckwheat

KNOWN DISTRIBUTION: Grand, Emery, and Uintah cos., Utah

HABITAT: Green River Shale Formation, rimrock, sandy soil; Douglas fir, sagebrush, desert shrub, and grassland community

ELEVATION: 8200 to 9000 feet (2501 to 2745 m)

DESCRIPTION: Plants perennial, 1.5-3 dm tall, branching from a woody caudex; leaves basal or sheathing up the stems less than 1 cm, 3-5 cm long, 24 mm wide, narrowly lanceolate, densely white-tomentose below, subglabrous and green above; petioles tomentose; stems slender glabrous, erect; bracts scale-like; inflorescence cymose, open, trichotomously branched, glabrous; involucre turbinate, campanulate, 2.5-4 mm long, 2-4 mm wide, sessile, 2-5 per cluster, glabrous and reddish; perianth white with greenish, reddish or reddish brown midribs and perianth tubes, 2-3 mm long; calyx segments similar, obovate; stamens exerted, anthers reddish brown; achene red brown, 2.5-3 mm long.

TAXONOMIC PROBLEMS: Ecologically E. intermontanum differs from E. scoparium because it occurs above 8000 feet on loamy soils. It is also distinguished by its larger size, more open inflorescence and the clustered involucre.

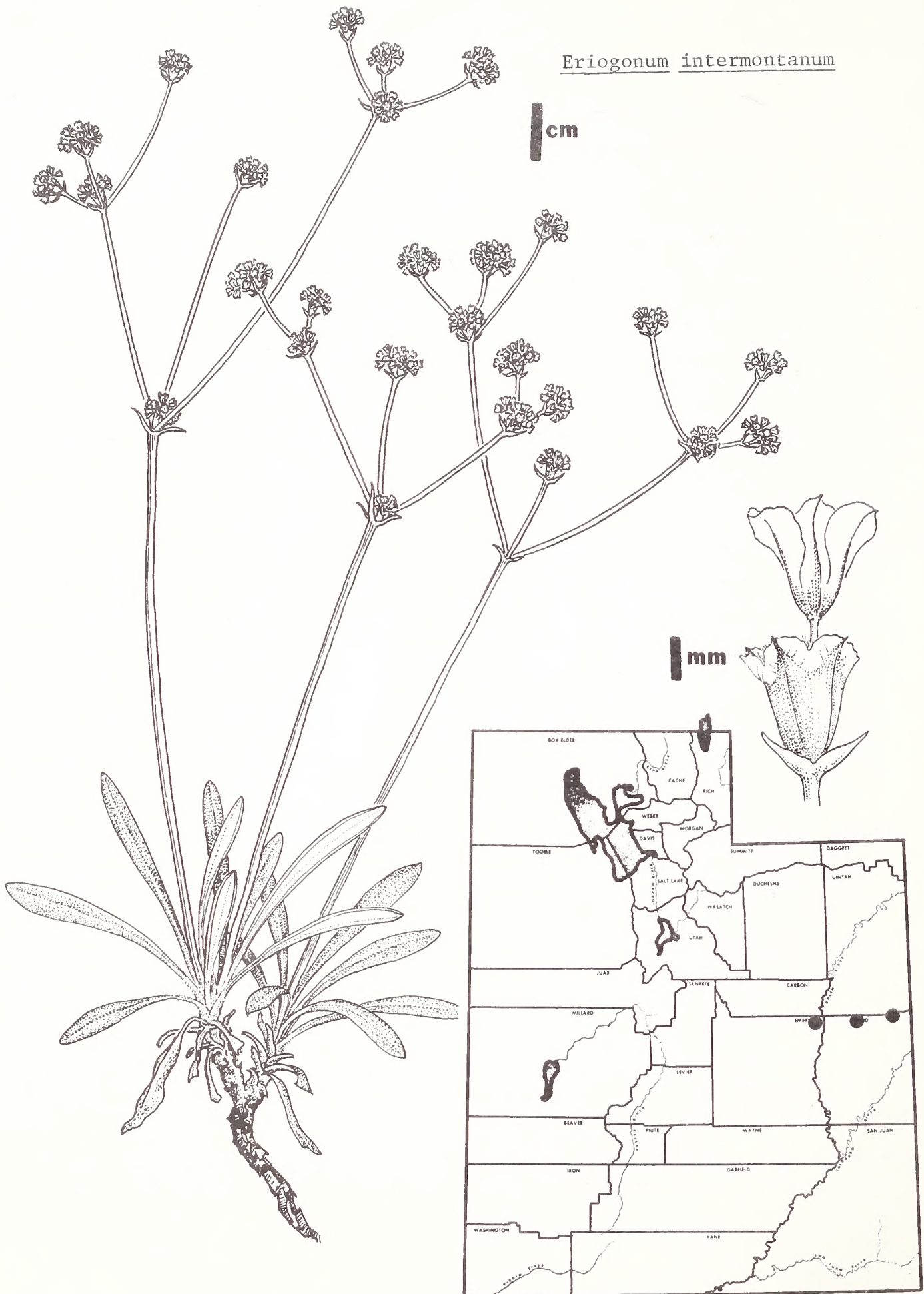
EXISTING OR POTENTIAL THREATS: Road construction and mineral exploration are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: This plant occurs on "shale-barrens" and ridge tops along the outer margin of the Uinta Basin; an area commonly used for construction of access roads.

RECOMMENDATIONS: Avoid the "barrens" in construction of roads or in other uses wherein lands are graded.

Eriogonum intermontanum



SCIENTIFIC NAME: Eriogonum jamesii Benth. var. rupicola Reveal

FAMILY: Polygonaceae

CITATION: Phytologia 25: 202. 1973.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Sandstone buckwheat

KNOWN DISTRIBUTION: Kane and Washington cos., Utah

HABITAT: Navajo Sandstone Formation on sandstone ledges and adjacent reddish blow sand

ELEVATION: 5200 feet (1586 m)

DESCRIPTION: Low caespitose perennials forming mats up to 2 dm across; leaves elliptic to broadly elliptic, 5-12 mm long, 5-8 mm wide, margin entire or nearly so; petiole 0.5-5 cm long; stems erect, 5-25 cm long, tomentose; inflorescences usually open, simple or compound umbellate, tomentose; bracts narrowly elliptic, up to 10 mm long; involucre turbinate to campanulate, 3-5 mm long; flowers yellow, 4-5 mm long including the stipe, densely pilose without; tepals dimorphic, outer whorl lanceolate to elliptic, inner narrower and longer; achenes light brown, 4-5 mm long.

TAXONOMIC PROBLEMS: None

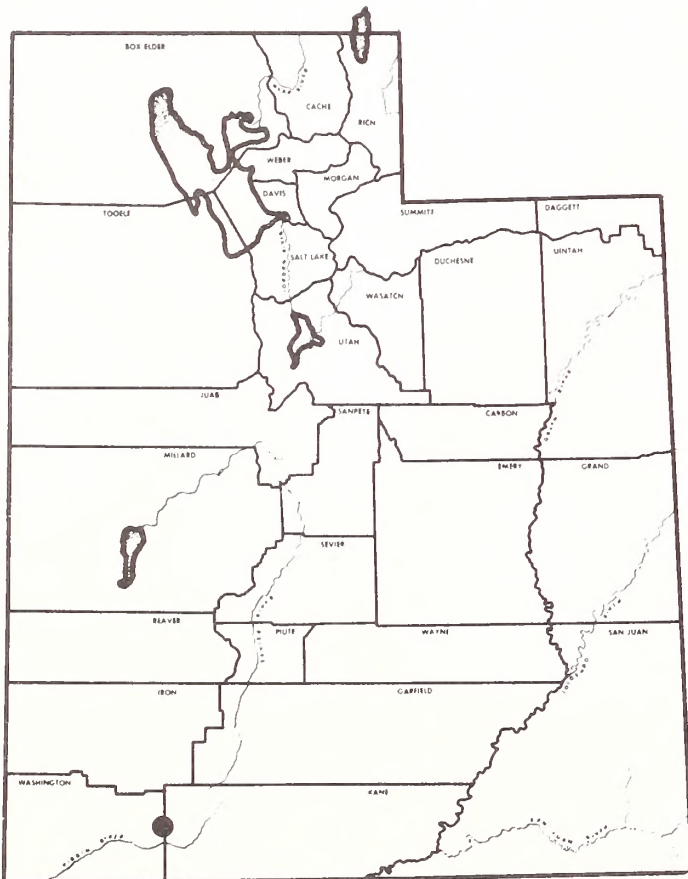
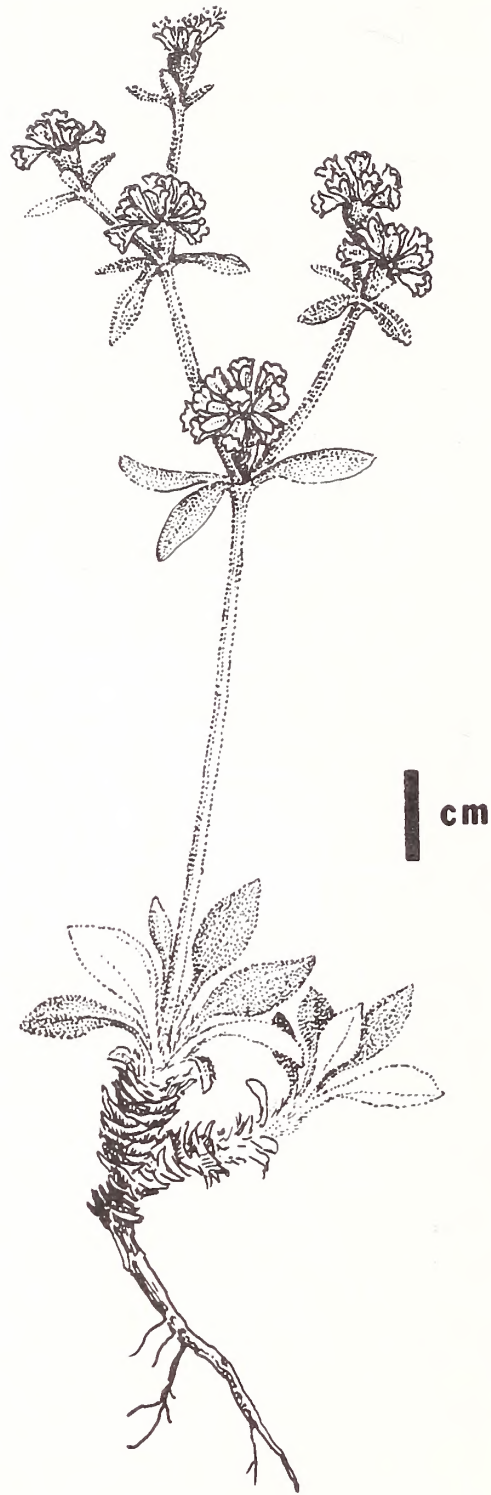
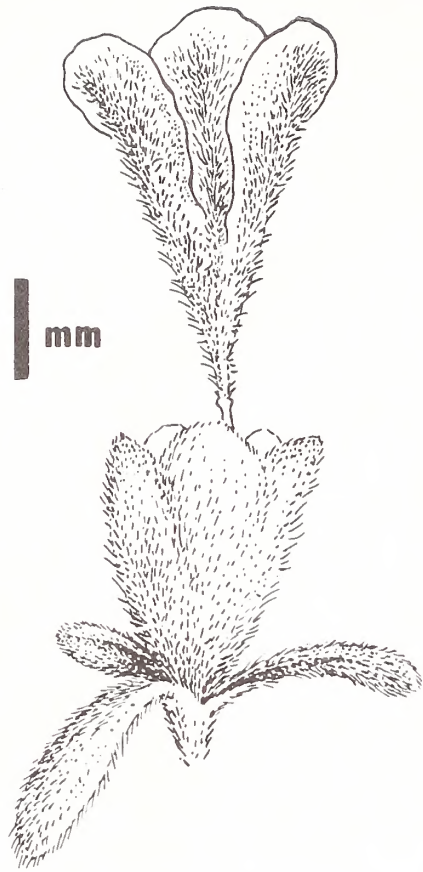
EXISTING OR POTENTIAL THREATS: Land use modifications and off-highway land use are potential threats to this plant.

LAND OWNERSHIP/MANAGEMENT: National Park Service

REMARKS: The total area occupied by this taxon is unknown; more work is indicated.

RECOMMENDATIONS: The Sandstone buckwheat should be regarded as threatened.

Eriogonum jamesii var. rupicola



SCIENTIFIC NAME: Eriogonum lancifolium Reveal and Brotherson

FAMILY: Polygonaceae

CITATION: Great Basin Naturalist 27: 187. 1967.

SYNONYMS: NONE

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Lance leaf buckwheat

KNOWN DISTRIBUTION: Carbon Co., Utah

HABITAT: Mancos Shale Formation; salt desert shrub, scattered juniper in gray clay soil

ELEVATION: 4900 to 5700 feet (1495 to 1739 m)

DESCRIPTION: Shrubby perennials 3-5 dm high, forming densely branched erect crowns from a woody caudex; leaves on lower half of plants; leaf blades lanceolate, 3-5 cm long, entire, sometimes crenulate and/or revolute; densely white tomentose below, less so above and usually green; stems densely tomentose below, becoming subglabrous on the branches; bracts scale-like; inflorescences dense clusters of trichotomous branches; involucre sessile, turbinate, 2.5-3 mm long tomentose, perianth white with brownish midribs, inner whorl narrow, outer whorl spatulate; achene brown.

TAXONOMIC PROBLEMS: Related to E. saurinum, this plant is distinguished by deciduous lower leaves.

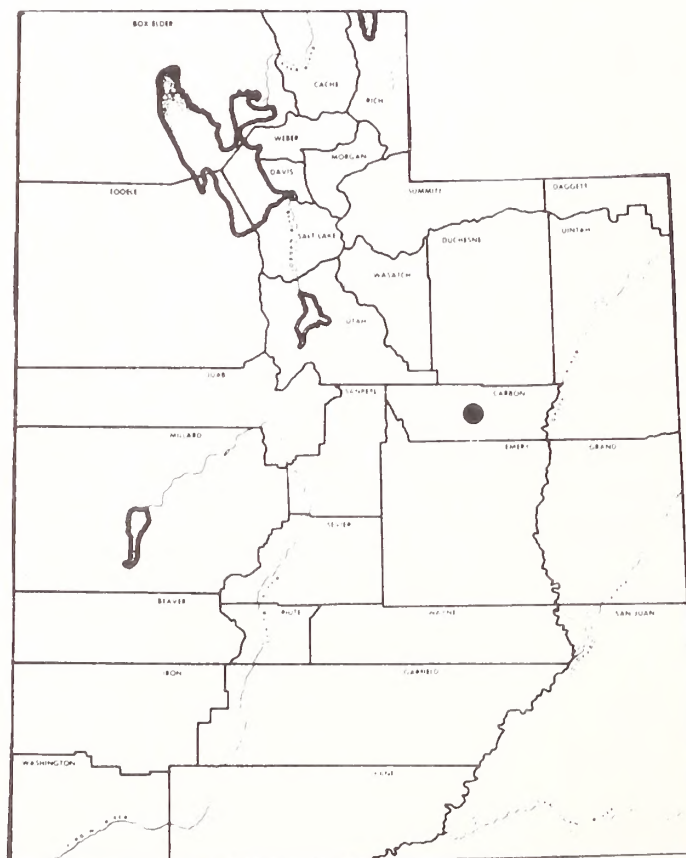
EXISTING OR POTENTIAL THREATS: This plant occupies an area potentially slated for an industrial pipeline transportation corridor and highway construction.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; private

REMARKS: Future expansion of highway and proposed transportation corridor and pipelines should not be allowed in the type locality of Eriogonum lancifolium.

RECOMMENDATIONS: This plant should be considered as endangered.

Eriogonum lancifolium



SCIENTIFIC NAME: Eriogonum loganum A. Nels.

FAMILY: Polygonaceae

CITATION: Bot. Gaz. 54: 149. 1912.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, July 1, 1975. Proposed as endangered, Federal Register, June 16, 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Logan buckwheat

KNOWN DISTRIBUTION: Cache Co., Utah

HABITAT: Rim of bench in loose white shale; mountain shrub, grassland community.

ELEVATION: 4800 to 4900 feet (1464 to 1495 m)

DESCRIPTION: A perennial with a woody branched caudex; stem short, 1 dm or less, simple, leafy, densely white lanate as are the leaves, peduncles, and involucre; the peduncle is stout, scapellike, 12-15 cm tall; involucre tubular, campanulate, scarious, 4-5 mm long; pedicels capitate; perianth white, scarious, with a pinkish midrib, inner and outer segments similar, about 2-4 mm long; achene glabrous.

TAXONOMIC PROBLEMS: Possibly related to E. ochrocephalum Wats., this plant can be distinguished by its white perianth.

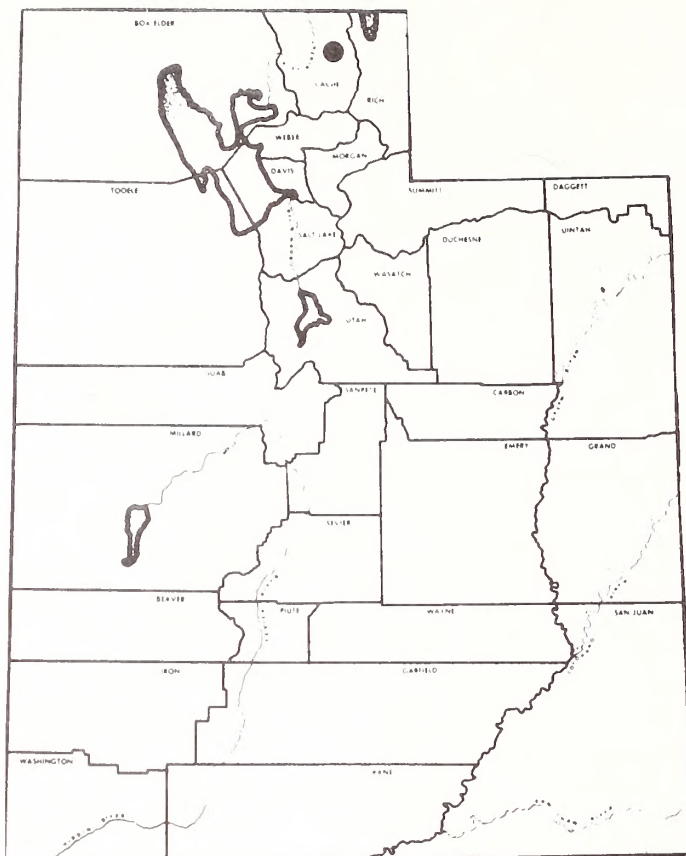
EXISTING OR POTENTIAL THREATS: E. loganum is endangered by proposed highway expansion.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

REMARKS: Logan buckwheat is pivotal to understanding the E. ochrocephalum-E. brevicaulis complex.

RECOMMENDATIONS: This plant should be regarded as endangered.

Eriogonum loganum



SCIENTIFIC NAME: Eriogonum nanum Reveal

FAMILY: Polygonaceae

CITATION: Phytologia 25: 194. 1973.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Dwarf buckwheat

KNOWN DISTRIBUTION: Box Elder and Weber cos., Utah

HABITAT: Talus slopes, limestone outcrops on ridges and nearby slopes

ELEVATION: 9500 feet (2898 m)

DESCRIPTION: Low pulvinate and caespitose herbaceous perennials forming mats up to 2 dm across; leaves broadly elliptic, 3-10 mm long, 2-4 mm wide, white tomentose below, subglabrous to glabrous above, margin crenulate; the petiole 1-3 mm long; stems scapose, 6-12 cm long, glabrous; inflorescence capitate; involucre congested, turbinate, 1.5-2.5 mm long; flowers greenish white to pale yellowish white, 2-3 mm long, tepals lanceolate; achenes light brown.

TAXONOMIC PROBLEMS: None

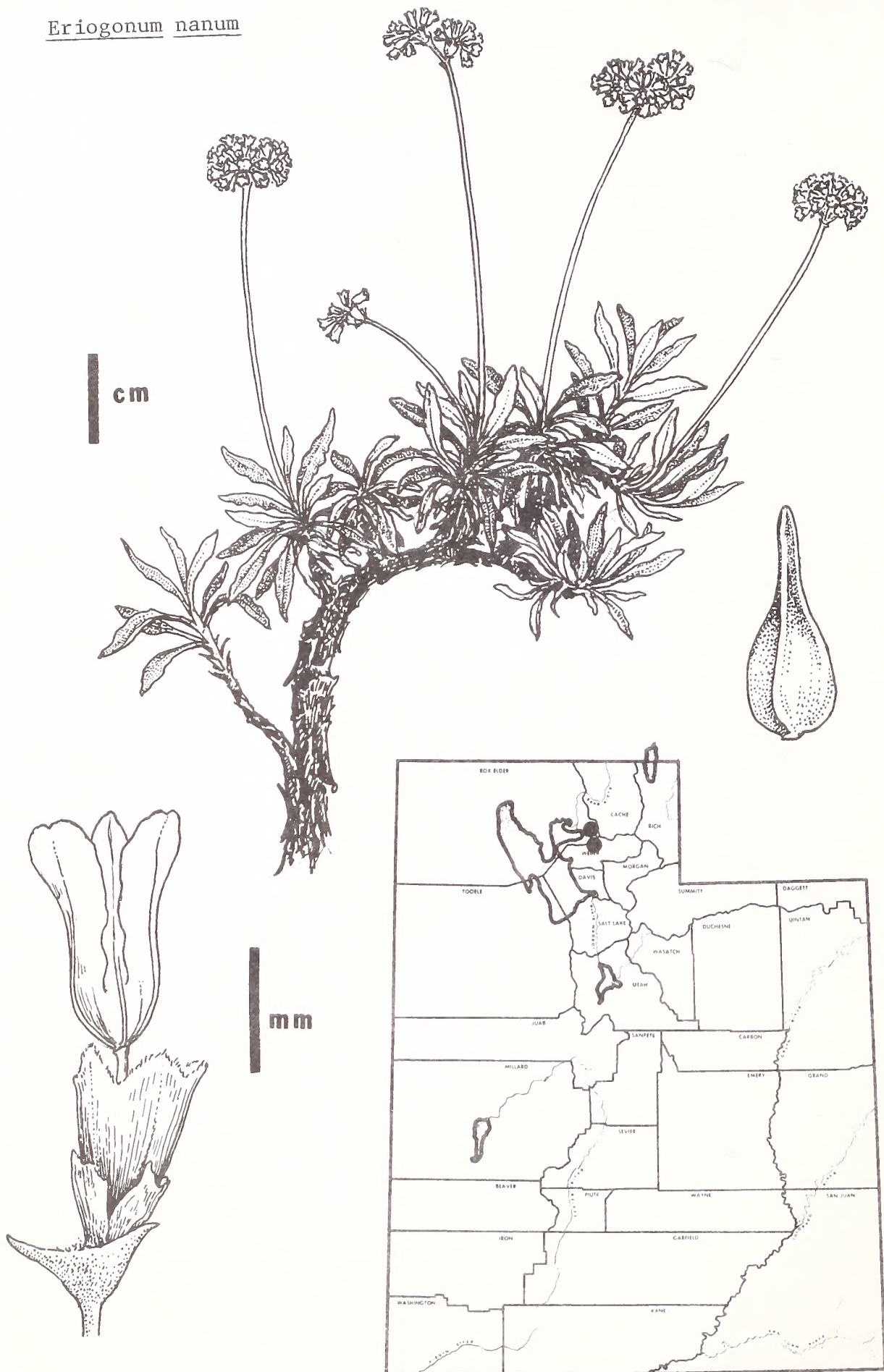
EXISTING OR POTENTIAL THREATS: Changes in land use and mineral exploration are potential threats to this plant.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

REMARKS: The plant is an evident calciphile and is known only from dolomite and marble strata at high elevations.

RECOMMENDATIONS: The plant should be regarded as threatened.

Eriogonum nanum



SCIENTIFIC NAME: Eriogonum natum Reveal

FAMILY: Polygonaceae

CITATION: Great Basin Naturalist 35: 363. 1975.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Terrace buckwheat

KNOWN DISTRIBUTION: Millard Co., Utah

HABITAT: Quaternary lacustrine deposits, saline marly playa remnant; salt desert shrub community

ELEVATION: 5000 to 5800 feet (1525 to 1769 m)

DESCRIPTION: Plant perennial; spreading with a short woody caudex from a stout taproot; leaves mostly basal, blade elliptic, 2-3 cm long, 10-15 mm wide, densely tomentose below, somewhat less so and greenish above; petiole 2-3 cm long, tomentose; flowering stems erect to spreading, slender 1-2 dm long, tomentose; inflorescence cymose-umbellate, trichotomously branched throughout, tomentose; bracts scale-like to foliaceous, tomentose; peduncles lacking; involucre solitary or occasionally in groups of 2, turbinate-campanulate, 2.4-4 mm long, thinly to densely tomentose without, bractlets linear-oblongate, gland tipped; pedicels 2.5-5 mm long; flowers bright yellow, golden to greenish midribs, 2-3 mm long, keeled along the base and midribs, united about 1/4 to 1/3 length of flower; stamens exserted; achenes light brown with a long 3-angled beak.

TAXONOMIC PROBLEMS: Eriogonum natum differs from E. brevicaulis var. cottamii in having longer and broader elliptical leaves, a longer but less branched inflorescence and smaller flowers.

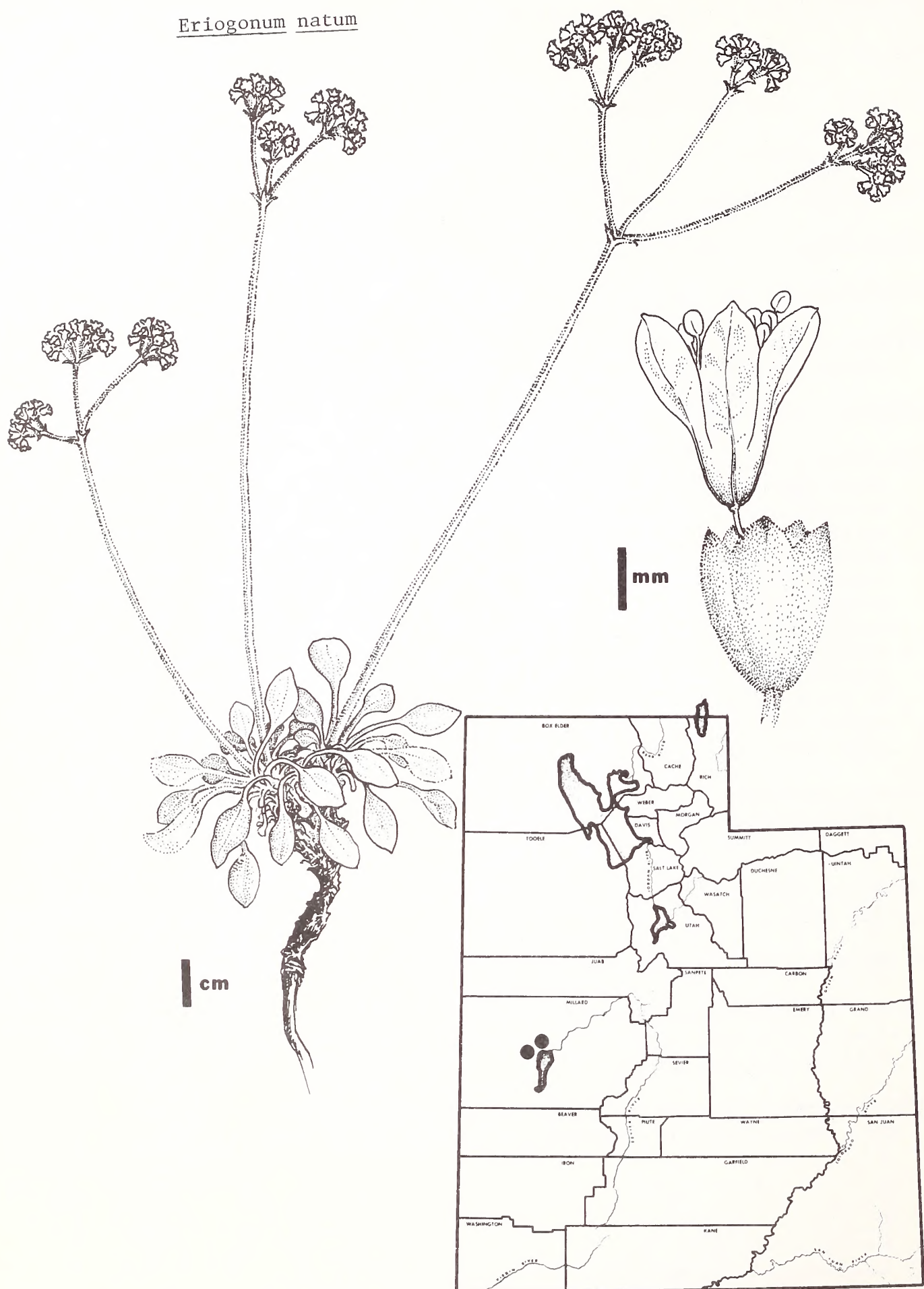
EXISTING OR POTENTIAL THREATS: Roadways and attendant impacts; gravel and fill removal are possible threats to this plant.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: This buckwheat occupies soils of low quality which are subject to erosion on a large scale, and any plant which tends to stabilize such soils is of value ecologically.

RECOMMENDATIONS: The species should be avoided in all future development which necessitates disturbance of land surface or vegetation.

Eriogonum natum



SCIENTIFIC NAME: Eriogonum ostlundii M. E. Jones

FAMILY: Polygonaceae

CITATION: Contr. W. Bot. 11: 12. 1903.

SYNONYMS: E. spathulatum Stokes ssp. spathuliforme Stokes. (Gen. Eriogonum 71. 1930.)
E. spathuliforme Rydb. (Bull. Torr. Bot. Club 39: 307. 1912.)
E. tenellum Stokes ssp. ostlundii Stokes. (Gen. Eriogonum 69. 1936.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Ostlund buckwheat

KNOWN DISTRIBUTION: Piute and Sevier cos., Utah

HABITAT: Clay hills and slopes; cool desert shrub and pinyon-juniper community along the river

ELEVATION: 4300 to 6500 feet (1312 to 1983 m)

DESCRIPTION: Spreading herbaceous perennials, 2-4 dm high, 1-3 dm across; leaves elliptic to spatulate, 1-3 cm long, tomentose below, less so above, margin flat; stems erect, glabrous; involucre turbinate or somewhat campanulate, 2-2.5 mm long, glabrous; flowers white, 1.5-2.3 mm long, glabrous, tepals of the inner whorl slightly narrower; achenes light brown.

TAXONOMIC PROBLEMS: None

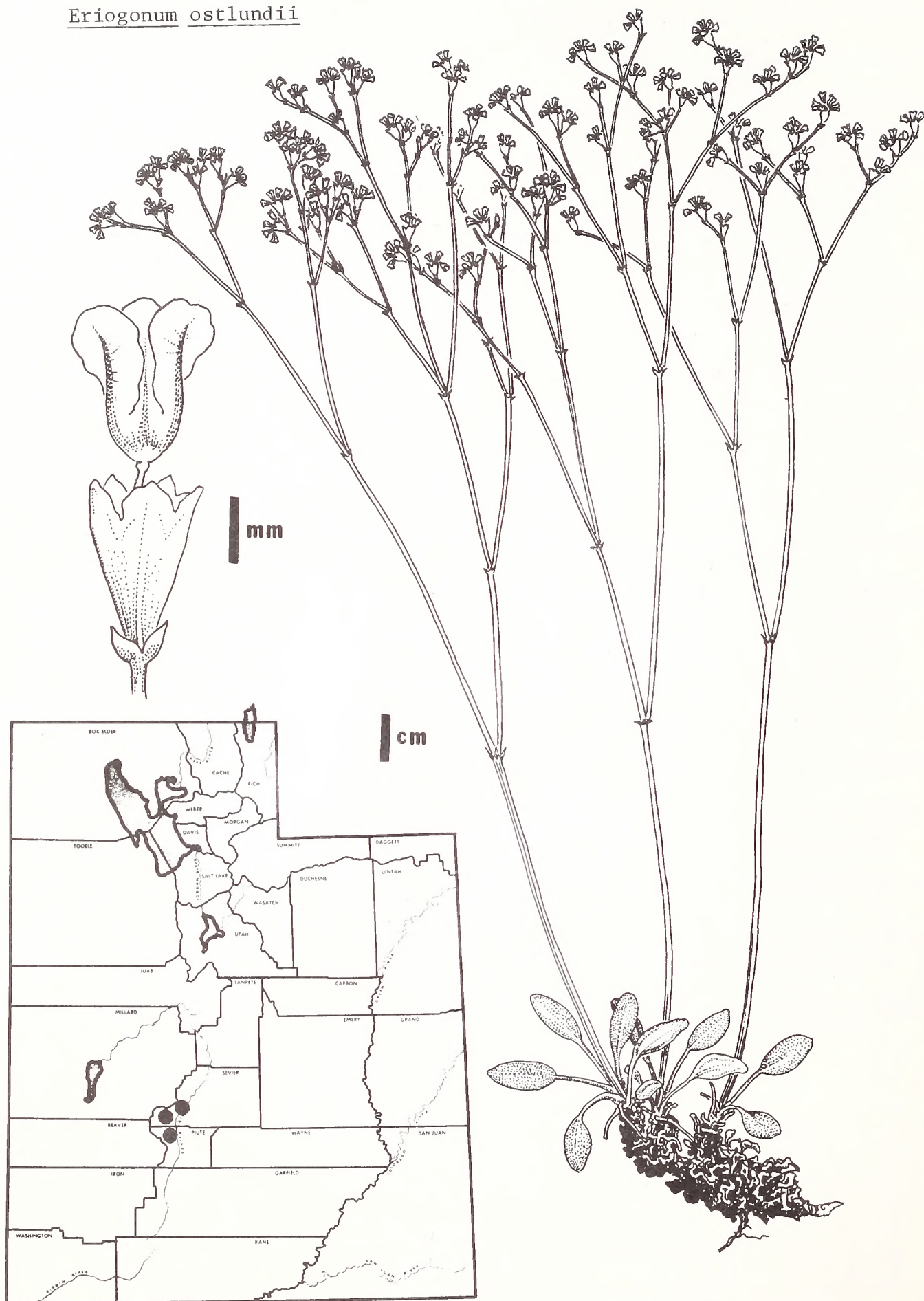
EXISTING OR POTENTIAL THREATS: Potential industrial development, highway construction, and mineral exploration are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State; private

REMARKS: The slender erect glabrous stems are diagnostic for this perennial in the Sevier River Valley.

RECOMMENDATIONS: The Ostlund buckwheat should be regarded as threatened.

Eriogonum ostlundii



SCIENTIFIC NAME: Eriogonum panguicense (M. E. Jones) Reveal var. alpestre
(S. Stokes) Reveal

FAMILY: Polygonaceae

CITATION: Proc. Utah Acad. Sci. 42: 292. 1966.

SYNONYMS: Eriogonum chrysocephalum Gray ssp. alpestre S. Stokes. (Gen.
Eriog. 93. 1936.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended
as endangered by S. L. Welsh, 1978.

COMMON NAME: Panguitch buckwheat

KNOWN DISTRIBUTION: Iron Co., Utah

HABITAT: Volcanic gravel and limestone, whitish clay outcrops of rim rocks;
spruce fir meadow community.

ELEVATION: 9500 to 11,000 feet (2898 to 3355 m)

DESCRIPTION: Low pulvinate to caespitose herbaceous perennial, forming mats
1-2 dm across; leaves narrowly oblanceolate, 0.5-7 cm long, 2-4 mm
wide, white tomentose below, floccose to subglabrous and green above,
margin mostly crenulate, occasionally inrolled; petiole 1-4 mm long;
stems scapose, 2-30 cm long, glabrous; inflorescences capitate;
involucres congested, turbinate, 2-3 mm long, glabrous, 5 teeth rounded;
flowers white, 2-3 mm long, glabrous, tepals obovate; achenes light
brown, 3-4 mm long.

TAXONOMIC PROBLEMS: None

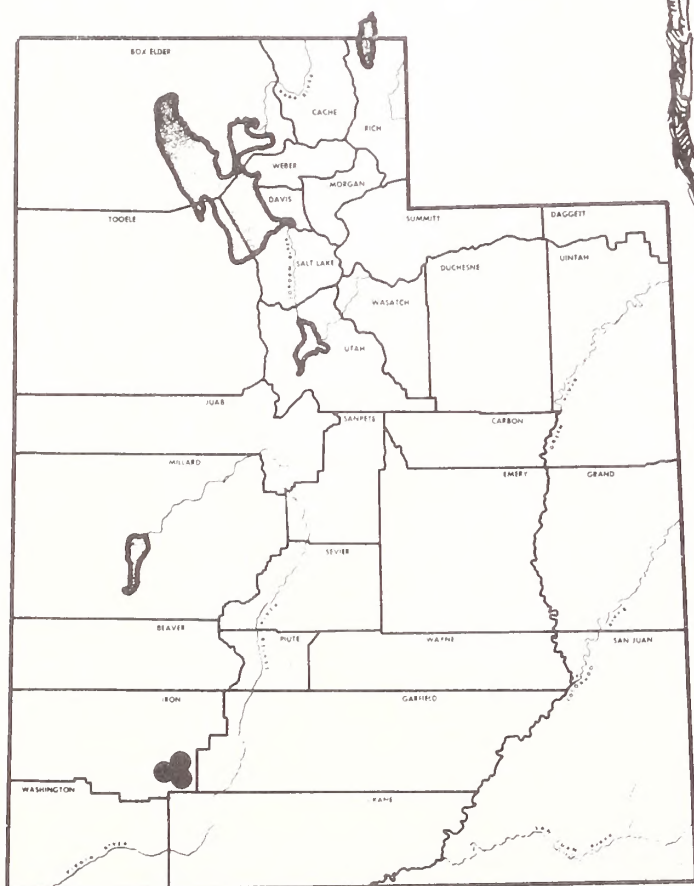
EXISTING OR POTENTIAL THREATS: Timber harvest, off trail and off highway
use are threats to this species.

LAND OWNERSHIP/MANAGEMENT: National Park Service; U. S. Forest Service

REMARKS: The Panguitch buckwheat is endemic to the upper rim of Cedar
Breaks.

RECOMMENDATIONS: This narrowly restricted plant should be regarded as
threatened.

Eriogonum panguicense var. alpestre



SCIENTIFIC NAME: Eriogonum saurinum Reveal

FAMILY: Polygonaceae

CITATION: Great Basin Naturalist 27: 197. 1968.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Dinosaur buckwheat

KNOWN DISTRIBUTION: Uintah Co., Utah; Moffat Co., Colorado

HABITAT: Mowry Shale and gypsiferous shales of the Mesa Verde formations, in clay strips along the strike of the formation; juniper, Amelanchier, and Eriogonum community on acidic soil.

ELEVATION: 5000 to 6000 feet (1525 to 1830 m)

DESCRIPTION: Shrubby perennial, 3-5 dm high with open and spreading crown from branching caudex; leaves on the lower half of the plant, often becoming deciduous on lower 5-10 cm of stems; leaf blades 3-6 cm long, densely white tomentose below, subglabrous and green above; stems 2-3.5 dm long, lower stems tomentose among leaves, green and glabrous above; bracts ternate, scale-like; inflorescence cymose, spreading; involucre sessile or sub-sessile, not clustered, turbinate; perianth cream-white to pale yellowish white with tan midribs and bases; stamens 2.5-4 mm long, pilose; anthers yellow.

TAXONOMIC PROBLEMS: The Dinosaur buckwheat differs from E. lonchophyllum in geographic distribution, smaller involucre and flowers and from E. corymbosum in a different ecology (acid soils).

EXISTING OR POTENTIAL THREATS: Road, dam, and canal construction, specifically Red Fleet Dam, are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; National Park Service; Utah State; private

REMARKS: Occupation of a peculiar habitat gives the Dinosaur buckwheat value in stabilization of low-quality surface features.

RECOMMENDATIONS: Surface disturbance of the habitat of this species should be disallowed.



Eriogonum saurinum

SCIENTIFIC NAME: Eriogonum smithii Reveal

FAMILY: Polygonaceae

CITATION: Great Basin Naturalist 27: 202. 1967.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, July 1, 1975.
Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Smith buckwheat

KNOWN DISTRIBUTION: Emery Co., Utah

HABITAT: Entrada Formation, red seleniferous blow sand; desert shrub community.

ELEVATION: 4500 to 5500 feet (1373 to 1678 m)

DESCRIPTION: Perennial, large erect to spreading glabrous shrub, 4-8 dm tall; leaves narrowly elliptic, 2.5-4.5 cm long, 6-10 mm wide, margin entire, usually thickened and revolute; stems 2-20 cm long, inflorescence open or somewhat compact, cymose; involucres turbinate, 3-3.5 mm long, perianth bright yellow, 3-4 mm long, inner whorl slightly narrower than the outer; achenes brown.

TAXONOMIC PROBLEMS: E. smithii is related to E. corymbosum, but it can easily be distinguished by its bright green foliage, yellow flowers, and almost total lack of pubescence.

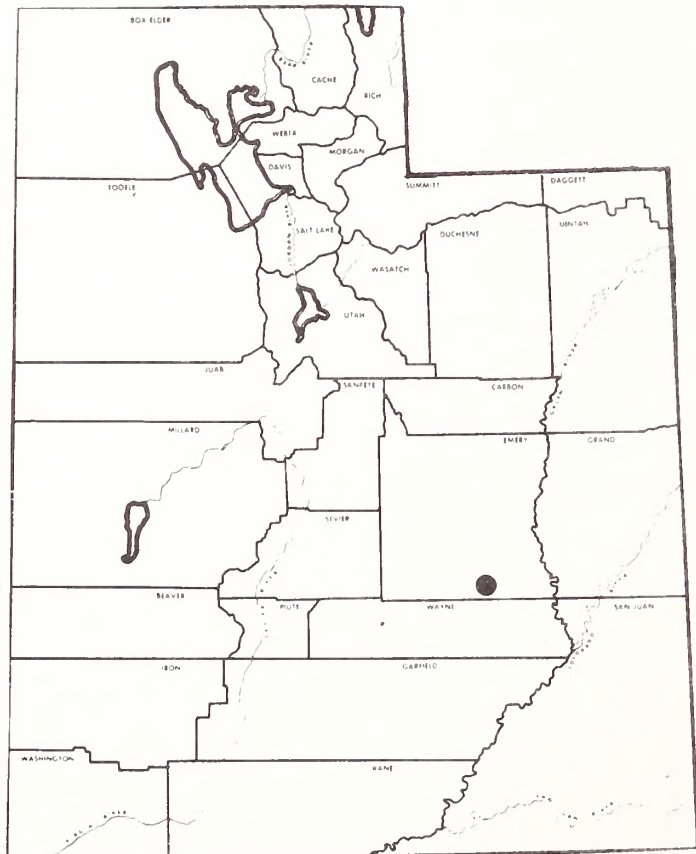
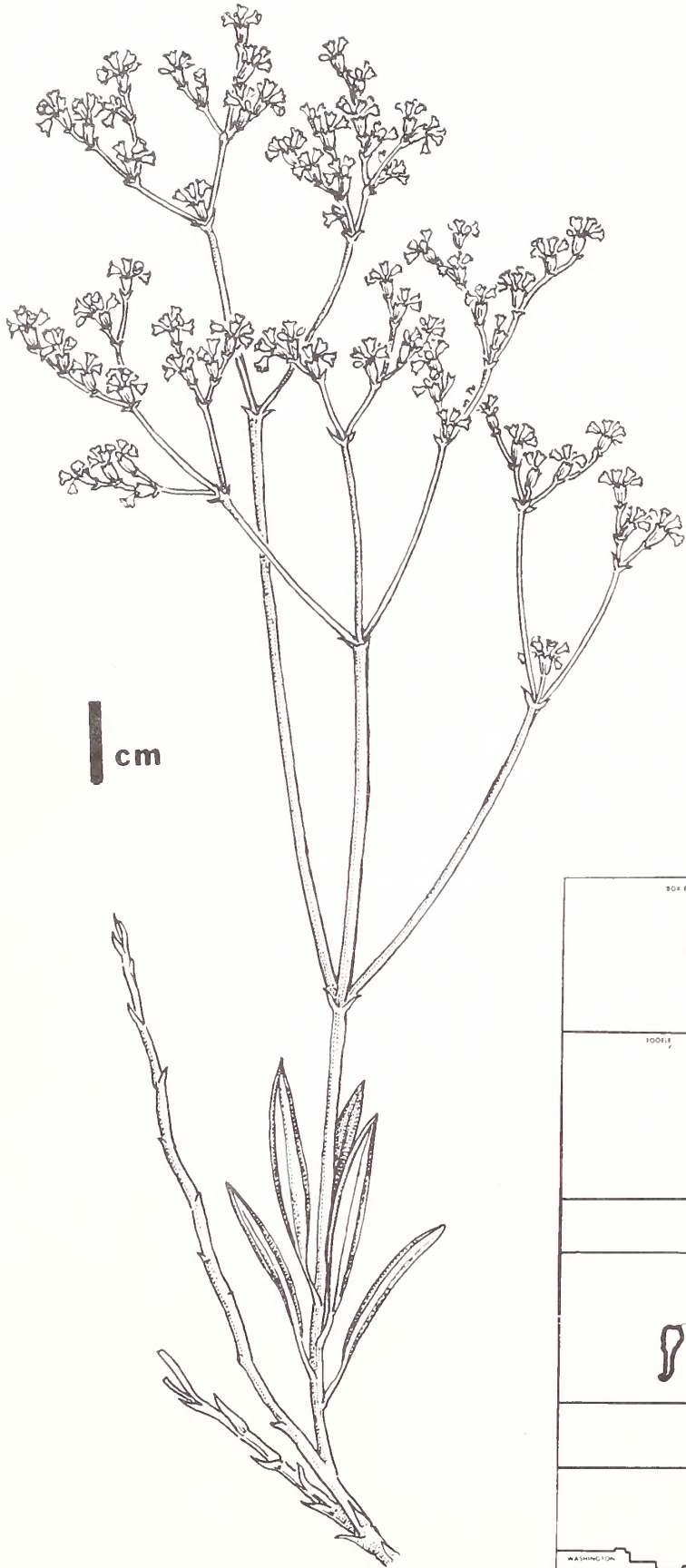
EXISTING OR POTENTIAL THREATS: The area occupied by this plant is a possible site for the construction of a power generating plant.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management, private

REMARKS: This plant grows on the foot slope of the San Rafael Swell where it occupies in situ Entrada Sandstone. It is remarkable that such a striking plant should have been over looked for so long.

RECOMMENDATIONS: This plant should be regarded as endangered.

Eriogonum smithii



SCIENTIFIC NAME: Eriogonum thompsonae S. Wats. var. albiflorum Reveal

FAMILY: Polygonaceae

CITATION: Madroño 19: 299. 1969.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Thompson buckwheat

KNOWN DISTRIBUTION: Washington Co., Utah; Mohave Co., Arizona

HABITAT: Moenkopi Formation, red gypsiferous clay silt to sandy soil; desert shrub community

ELEVATION: 3600 to 4600 feet (1098 to 1403 m)

DESCRIPTION: Spreading herbaceous perennial subshrub, 3-5 dm high and 3-6 dm across; leaves oblong to oblanceolate or elliptic, 3-4.5 cm long, 8-15 mm wide, tomentose below, glabrous or nearly so above, the margin flat, the petiole 3-7 cm long; stems erect, 12-25 cm long, glabrous; inflorescences open, cymose, 1-3 dm long and wide, glabrous; involucre with 5 acute teeth, 3-3.5 mm long; flowers white, 3-3.5 mm long, glabrous, the tepals oblong to obovate; achenes light brown, 2.5-3 mm long.

TAXONOMIC PROBLEMS: Closely related to E. thompsonae var. thompsonae, E. thompsonae var. albiflorum differs in its white flowers.

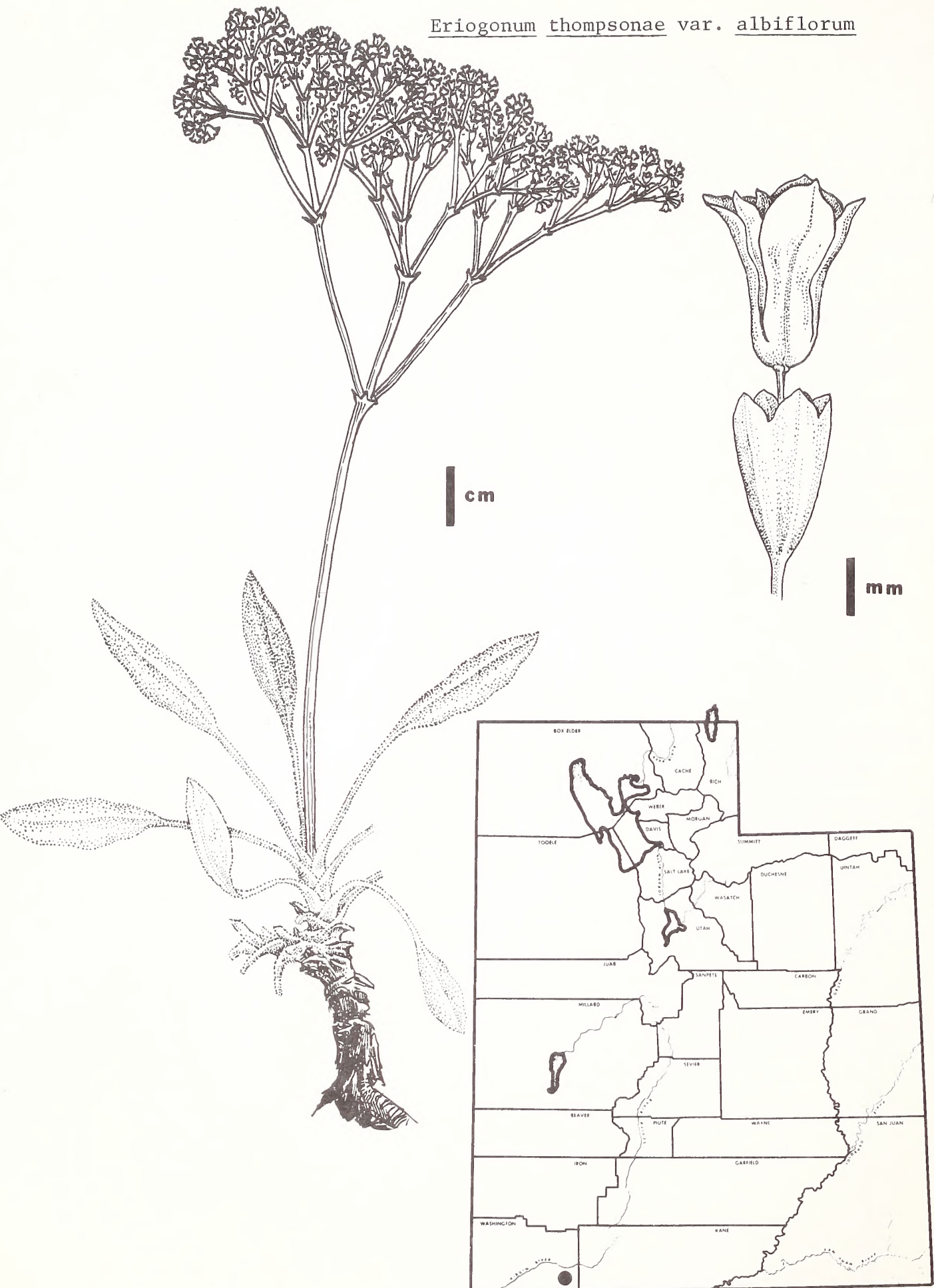
EXISTING OR POTENTIAL THREATS: Urban and industrial expansion, off road vehicle use and changes in the land use are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State; private

REMARKS: This specialized buckwheat survives in low-quality gypsiferous soils. Genetic study of this and similar taxa might result in reclamation of these soil types.

RECOMMENDATIONS: Survey the total range of this taxon and set aside portions of its range in perpetuity.

Eriogonum thompsonae var. albiflorum



SCIENTIFIC NAME: Eriogonum thompsonae S. Wats. var. thompsonae

FAMILY: Polygonaceae

CITATION: Amer. Naturalist 7: 302. 1873.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Thompson buckwheat

KNOWN DISTRIBUTION: Kane, Washington cos., Utah; Mohave Co., Arizona

HABITAT: Carmel and Chinle formations, sandstone talus, clay loam; desert shrub community

ELEVATION: 5000 to 6000 feet (1525 to 1830 m)

DESCRIPTION: Spreading herbaceous perennials, 2-4 dm high and 2-5 dm across; leaves oblong to oblanceolate, 3-5 cm long, 8-15 mm wide, tomentose below, glabrous or nearly so above, margin flat; stems erect, glabrous; involucre turbinate, 2-3.5 mm long, glabrous; flowers yellow; tepals obovate, 3-3.5 mm long, glabrous; achenes light brown.

TAXONOMIC PROBLEMS: None

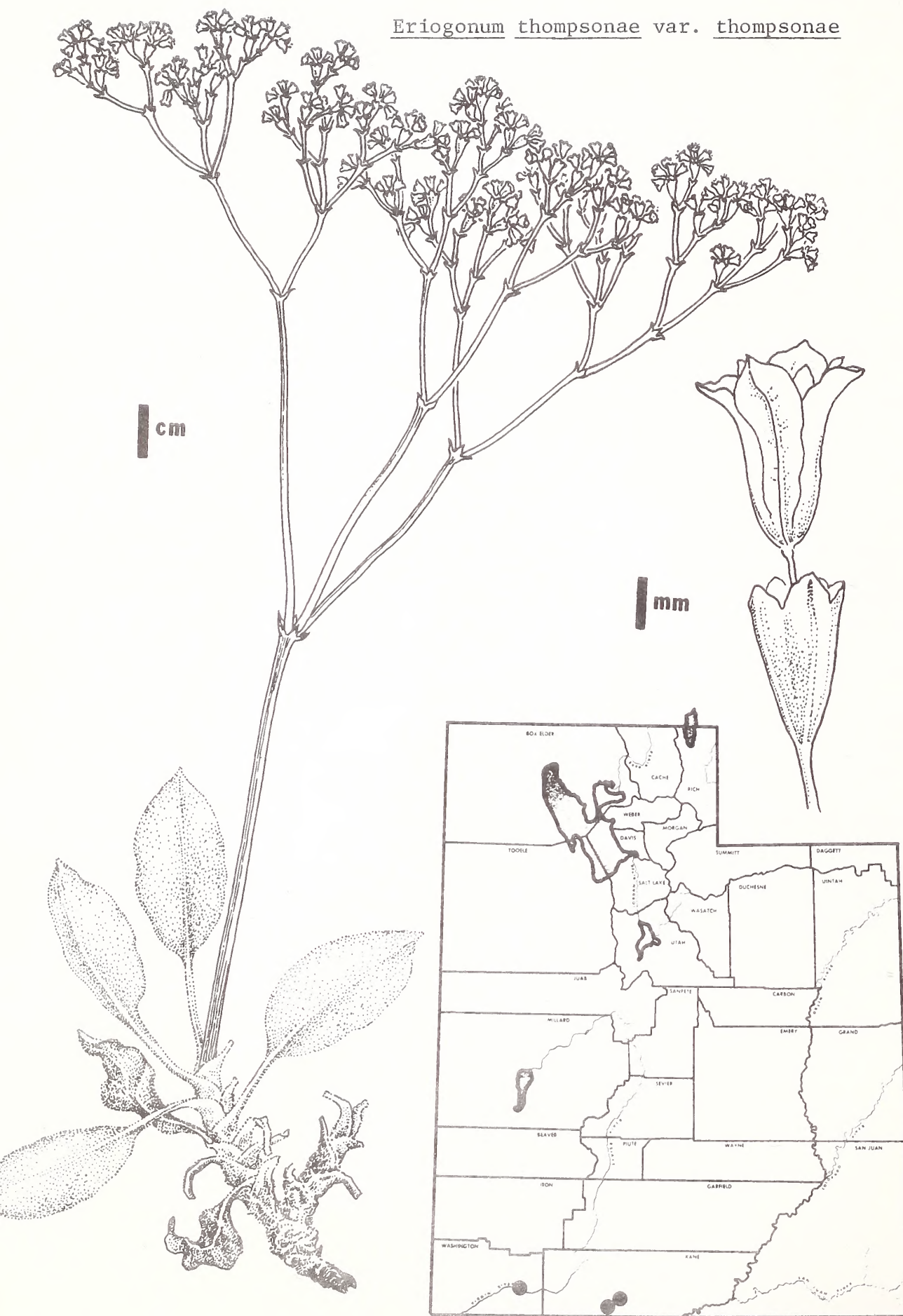
EXISTING OR POTENTIAL THREATS: Industrial development, private real estate development, and highway construction are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; private; Utah State

REMARKS: The bright yellow flower and shrubby habit is diagnostic.

RECOMMENDATIONS: The Thompson buckwheat should be regarded as threatened.

Eriogonum thompsonae var. thompsonae



SCIENTIFIC NAME: Eriogonum zionis J. T. Howell var. zionis

FAMILY: Polygonaceae

CITATION: Leaf1. W. Bot. 2: 253. 1940.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Zion buckwheat

KNOWN DISTRIBUTION: Kane and Washington cos., Utah

HABITAT: Navajo Sandstone Formation, sandy alluvium; cool desert and montane shrub community

ELEVATION: 5000 feet (1525 m)

DESCRIPTION: Perennial herb from gnarled woody branching caudex, 2-3.5 dm tall; leaves strictly basal, lanceolate, densely white tomentose below, subglabrous to glabrous above, 3.5 cm long, 2.5 cm wide; stems glabrous, bright green, up to 2 dm long, sometimes inflated; bracts scale-like; peduncles erect, stout; involucre turbinate, 2 mm long, greenish-yellow; fruit an achene.

TAXONOMIC PROBLEMS: Related to E. racemosum, the Zion buckwheat differs in the yellow-green perianth, upwardly inflated and glaucous stems.

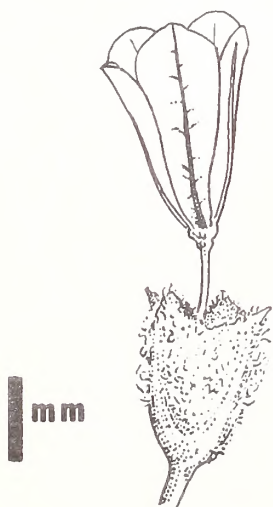
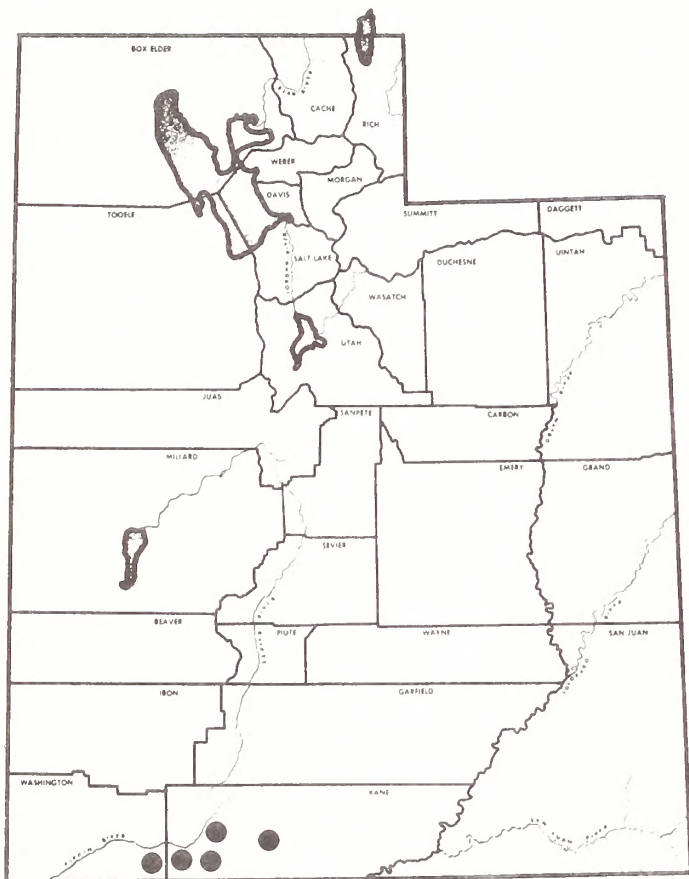
EXISTING OR POTENTIAL THREATS: Potential industrial development is a threat to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; National Park Service

REMARKS: The moderately swollen internodes of this plant are diagnostic. There is a strong resemblance to E. racemosum.

RECOMMENDATIONS: The plant should be treated as threatened.

Eriogonum zionis var. zionis



SCIENTIFIC NAME: Primula maguirei L. O. Williams

FAMILY: Primulaceae

CITATION: Amer. Midl. Naturalist 17: 747. 1936.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Maguire primrose

KNOWN DISTRIBUTION: Cache Co., Utah

HABITAT: Damp overhanging rocks, ledges, and crevices; montane shrub, mixed aspen and conifer community

ELEVATION: 4800 to 5500 feet (1464 to 1678 m)

DESCRIPTION: Plants perennial; stems scapose, 4-10 cm tall; leaves broadly spatulate, attenuated into a winged petiole, entire or slightly undulate rounded to obtuse at the apex, 3-7 cm long; involucral bracts usually two, larger one 4-7 mm long, the smaller 1-3 mm long or vestigial, flat or falcate; calyx 5-6 mm long, farinose; corolla tube 9-11 mm long, about twice as long as the calyx, limb 14-25 mm broad, lobes 6-10 mm long, obovate, emarginate, red or purple when dry; capsule cylindrical, 5 mm long, stylopodium well developed especially on the immature capsule.

TAXONOMIC PROBLEMS: Related to P. cusickiana, the Maguire primrose may be distinguished by its larger spatulate, thin leaves and corolla tube being twice as long as the calyx.

EXISTING OR POTENTIAL THREATS: Exploitation for commercial or amateur gardening and potential highway construction are threats to this plant.

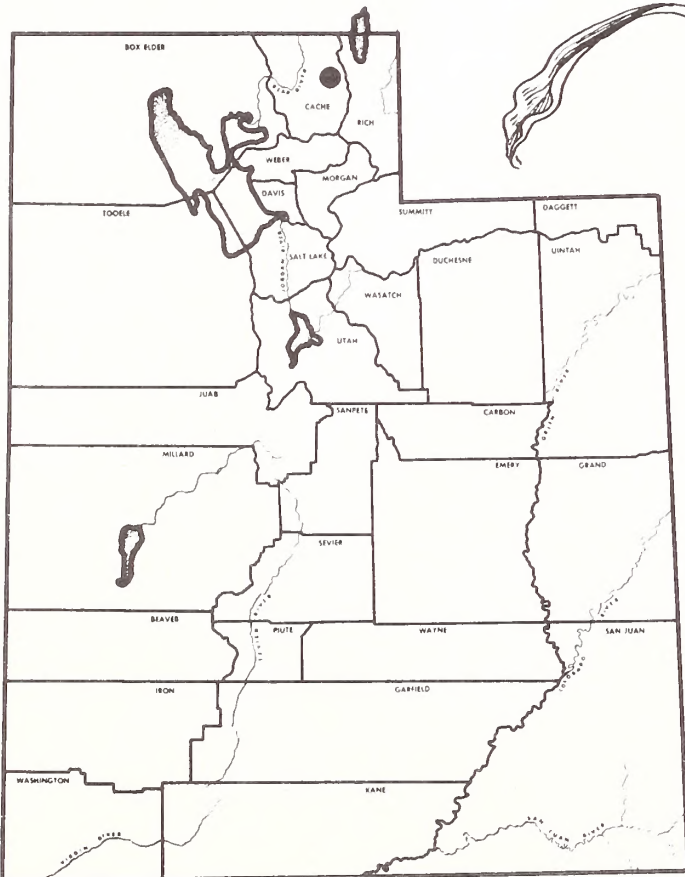
LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

REMARKS: This is a remarkably beautiful species.

RECOMMENDATIONS: The Maguire primrose should be treated as threatened.

Primula maguirei

1 cm



SCIENTIFIC NAME: Ranunculus acriformis A. Gray var. aestivalis L. Benson

FAMILY: Ranunculaceae

CITATION: Amer. Midl. Naturalist 40: 43. 1948.

SYNONYMS: None

STATUS: Proposed as endangered, possibly extinct, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Autumn buttercup

KNOWN DISTRIBUTION: Garfield Co., Utah

HABITAT: Well developed bog formed by seepage springs; desert shrub, sagebrush community

ELEVATION: 6400 to 7000 feet (1952 to 2135 m)

DESCRIPTION: Plants perennial, roots somewhat fleshy, stems erect or decumbent at the base, not rooting, 3-6 (7) dm tall, densely hirsute spreading, first nodes short, 6-10 flowers; leaves at the base reniform in outline, 3-4 cm long, 4-7 cm wide, deeply parted cleft with broadly linear lobes, sparsely hirsute; pedicels appressed pubescent; calyx reflexed 4-5 mm long, deciduous; petals 5, about 8 mm long, yellow, broadly obovate, nectary scale rectangular, large; stamens many; achenes 15-40 in hemispheroidal head, glabrous, beaked, 5-7 mm long, 6-8 mm wide.

TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Grazing and changes in pasture management would end the existence of this plant.

LAND OWNERSHIP/MANAGEMENT: Private

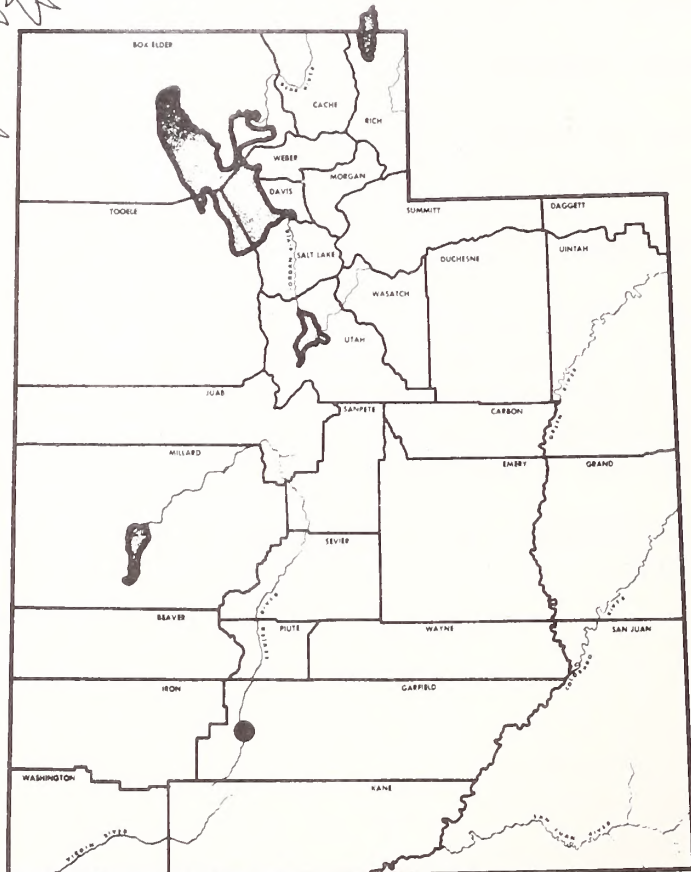
REMARKS: This late flowering Ranunculus was first collected in 1894 by M. E. Jones and was located again by L. Benson in 1948 who recommended that the only population not be "unduly collected as it appeared to be barely holding its own". The plant has not been collected recently and may be extinct.

RECOMMENDATIONS: A concentrated effort should be made to relocate this plant.

Ranunculus acriformis
var. aestivalis



1 cm



SCIENTIFIC NAME: Castilleja aquariensis N. Holmgr.

FAMILY: Scrophulariaceae

CITATION: Bull. Torrey Bot. Club. 100: 87. 1973.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Aquarius paintbrush

KNOWN DISTRIBUTION: Garfield Co., Utah

HABITAT: Tertiary igneous gravels, rocky soil; subalpine grasslands, sagebrush meadows, and scattered spruce community

ELEVATION: 9800 feet (2989 m)

DESCRIPTION: Plants perennial; caudex small, woody; stems unbranched, erect to ascending, anthocyanous purple, stiffly hispid below, becoming villous in the inflorescence with an underlayer of gland-tipped hairs; leaves 2-3 cm long, densely hispid-pilose; inflorescence narrow, yellow with reddish margins; bracts lanceolate to ovate, upper ones with lobes near the apex, glandular pubescent; calyx 18-22 mm long; corolla 17-20 mm long; galea glabrous, except for glandular pubescence on the back; anthers exerted; fruit a capsule.

TAXONOMIC PROBLEMS: C. aquariensis is related to C. sulphurea but is distinguished by shorter stems and corolla.

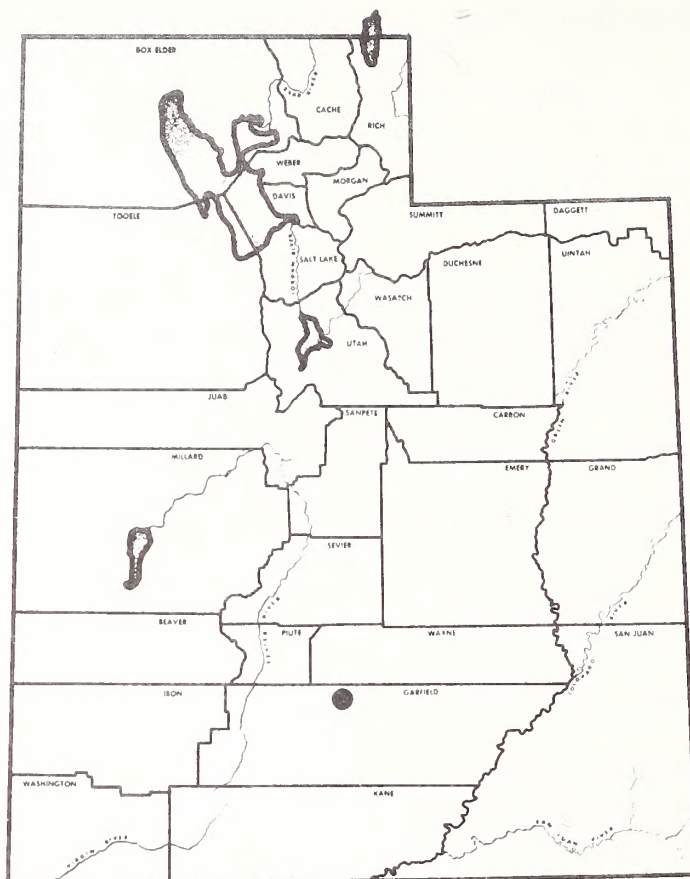
EXISTING OR POTENTIAL THREATS: Road realignment or other construction activity are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service

REMARKS: This plant forms a part of the Septentrionales group with C. parvula and C. revealii. Each occupies its own plateau with intervening valleys and thus becomes important in understanding speciation.

RECOMMENDATIONS: The plant remains obscure despite the knowledge about the basic locality. More work is necessary to elucidate the extent of the species.

Castilleja aquariensis



SCIENTIFIC NAME: Castilleja parvula Rydb.

FAMILY: Scrophulariaceae

CITATION: Bull. Torrey Bot. Club 34: 40. 1907.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Tushar paintbrush

KNOWN DISTRIBUTION: Piute and Beaver cos., Utah

HABITAT: Alpine vegetation in Tertiary igneous gravels

ELEVATION: 10,000 to 11,800 feet (3050 to 3599 m)

DESCRIPTION: Caespitose perennial with a short caudex; stems many, 5-15 cm high, puberulent; leaves lanceolate, 1-2 cm long, puberulent; bracts ovate, dark brownish, crimson, finely puberulent, entire or with short lobes; calyx 12-14 mm long, puberulent, equally cleft above and below, its lobes oblong, obtuse, 2-3 mm long; corolla 17-18 mm long, greenish with purplish margins; galea about 7 mm long, lip 2.5-3 mm long, lobes lanceolate.

TAXONOMIC PROBLEMS: C. parvula differs from its near relative C. occidentalis in the bracts which are dark crimson and not villous. Also, the corolla is greenish with a shorter lip.

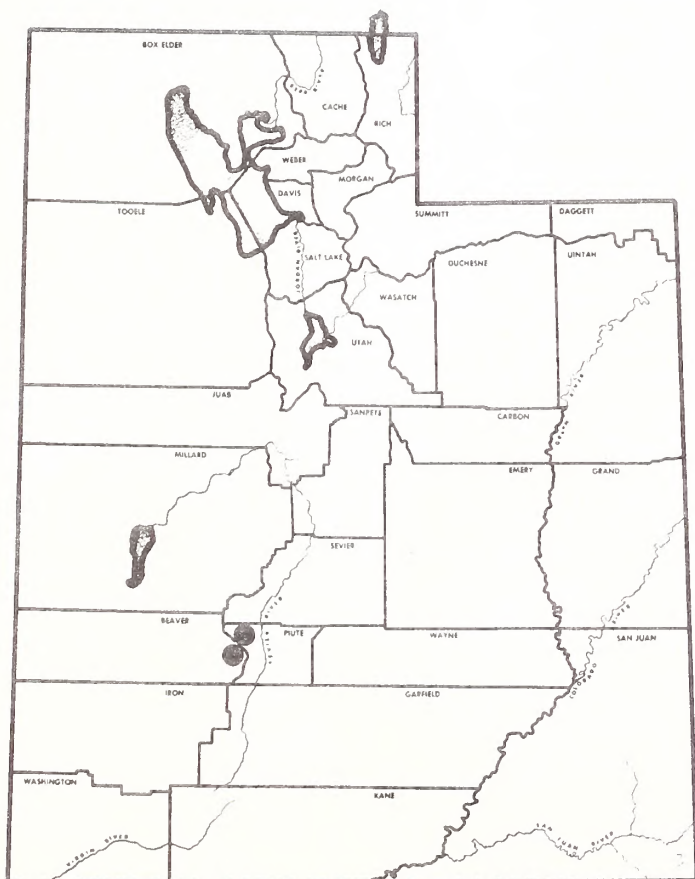
EXISTING OR POTENTIAL THREATS: Mining claims, mineral exploration and changes in land use are threats to this species.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service; private

REMARKS: The rose-purple inflorescences of this clump-forming plant stand in sharp contrast to the green foliage of alpine vegetation.

RECOMMENDATIONS: This species should be investigated to determine pollinating agents and reproductive strategies.

Castilleja parvula



SCIENTIFIC NAME: Castilleja revealii N. Holmgr.

FAMILY: Scrophulariaceae

CITATION: Bull. Torrey Bot. Club 100: 83. 1973.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Reveal paintbrush

KNOWN DISTRIBUTION: Garfield Co., Utah

HABITAT: Limestone outcrops, gravelly soil; ponderosa pine woodland

ELEVATION: 7800 to 8000 feet (2379 to 2440 m)

DESCRIPTION: Plants perennial; caudex soft woody above a cluster of roots; stems usually single, sometimes two rarely three, unbranched, erect, 0.8-1.5 dm tall, anthocyanous purple, glabrous becoming villous in the inflorescence; leaves 2-3.5 cm long, linear to lanceolate except at the base, mostly glabrous, sometimes glandular puberulent above, puberulent below; bracts broadly lanceolate to ovate rounded, glandular puberulent, magenta to rose; calyx 16.5-22 mm long, glandular hispid; corolla 19-25 mm long, anthers included in the galea; fruit a capsule.

TAXONOMIC PROBLEMS: Related to C. parvula, this plant can be distinguished by its strict habit, few stems, and longer corolla.

EXISTING OR POTENTIAL THREATS: Inadvertant highway realignment, construction or trampling are threats to this species.

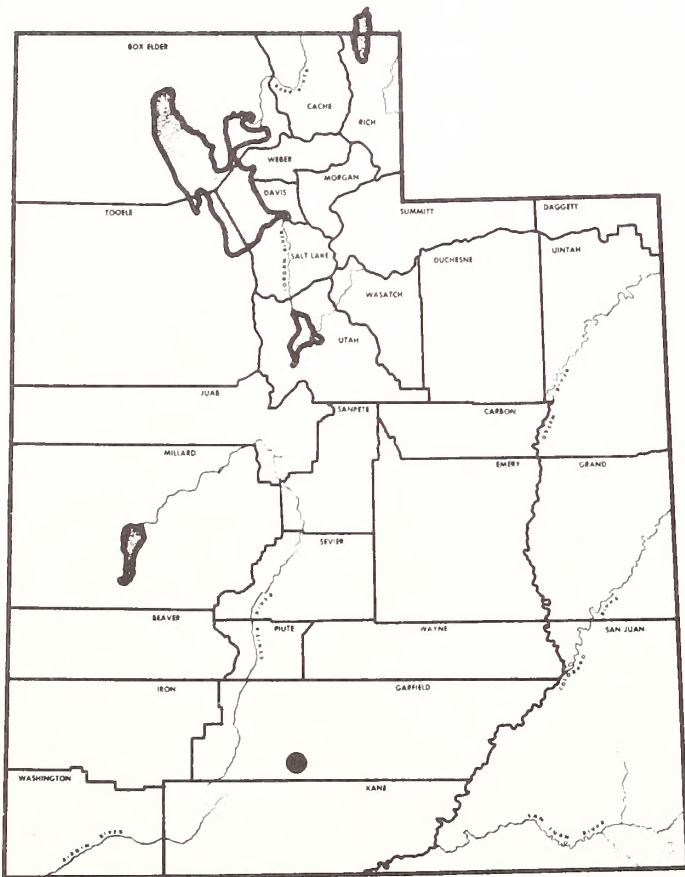
LAND OWNERSHIP/MANAGEMENT: National Park Service

REMARKS: This plant is known only from the type locality.

RECOMMENDATIONS: The extent of the population should be determined and the relation of this plant to its environment should be investigated.

Castilleja revealii

cm



SCIENTIFIC NAME: Penstemon acaulis L. O. Williams

FAMILY: Scrophulariaceae

CITATION: Ann. Missouri Bot. Gard. 21: 345. 1934.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Stemless beardtongue

KNOWN DISTRIBUTION: Daggett Co., Utah; Sweetwater Co., Wyoming

HABITAT: Sandy and rock ridges in juniper and sagebrush communities

ELEVATION: 5500 to 7200 feet (1678 to 2196 m)

DESCRIPTION: A depressed acaulescent perennial, caespitose; roots slender; leaves linear-acute, 1-2 cm long, 1 mm wide, usually in whorls on the crown or short proliferous branches; sepals 5 mm long, minutely glandular puberulent; corolla blue, about 15 mm long, usually subtended by a few leaves, expanded at the throat, 6-8 mm wide, glandular on the outer surface, lobes rounded, 3 mm long, somewhat conduplicate, yellow hairy in the throat, mostly on the middle lobe; stamens glabrous, staminode filiform with golden crisp hairs two-thirds of its length.

TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Roads through population areas, increased visitor use, and populations on private property are threats to this species.

LAND OWNERSHIP/MANAGEMENT: Utah State; National Park Service; private

REMARKS: This dwarf beardtongue has flowers which overtop the clustered linear leaves.

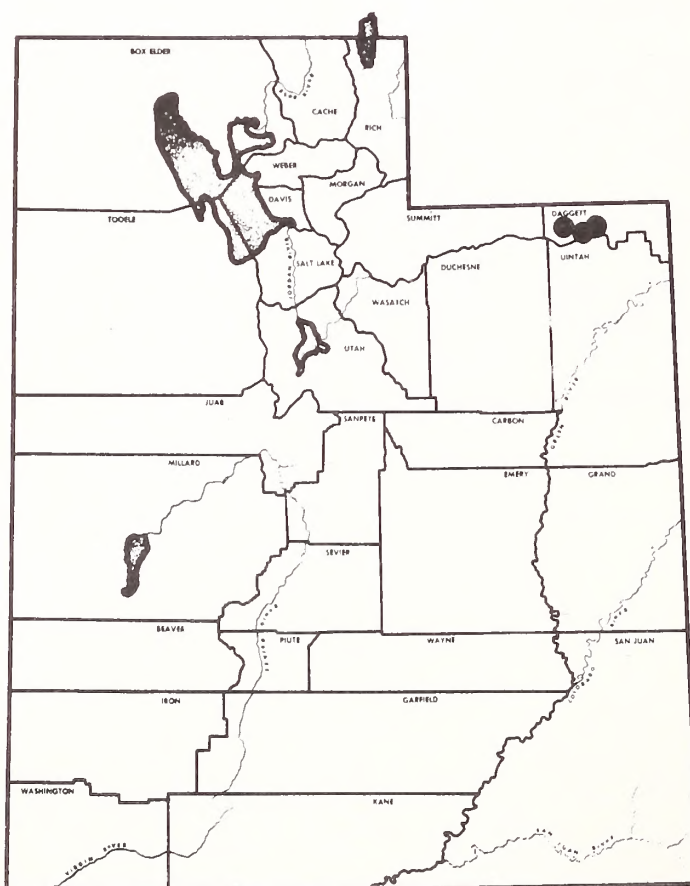
RECOMMENDATIONS: A monitoring program should be established.

Penstemon acaulis



mm

cm



SCIENTIFIC NAME: Penstemon atwoodii Welsh

FAMILY: Scrophulariaceae

CITATION: Great Basin Naturalist 35: 378. 1976.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Atwood beardtongue

KNOWN DISTRIBUTION: Kane and Garfield cos., Utah

HABITAT: Kaiparowits, Wahweap and Straight Cliffs formations, grayish sand and clay loam; ponderosa pine and pinyon-juniper woodlands

ELEVATION: 6200 to 8000 feet (1891 to 2440 m)

DESCRIPTION: Perennial herbs, 1.4-5.3 dm tall, the stems few to several from a branching caudex; glabrous below, glandular hairy above; leaves glabrous, the basal ones oblanceolate to spatulate or rarely ovate to elliptic, entire, 2.8-9 cm long, the cauline leaves lance-linear to oblong or spatulate, more or less auriculate above, entire or rarely remotely serrate, 3-7 cm long; inflorescence of several distinct whorls; bracts foliaceous; calyx 6.5-8.5 mm long, lobes lanceolate, herbaceous, purplish, glandular pubescent; corolla glandular pubescent, purplish, 13-16 mm long, glabrous within; anthers glabrous, sacs divergent, staminode yellow, bristly, linear; capsule glabrous.

TAXONOMIC PROBLEMS: Related to P. jamesii, P. atwoodii is easily distinguished by its white glandular pubescence.

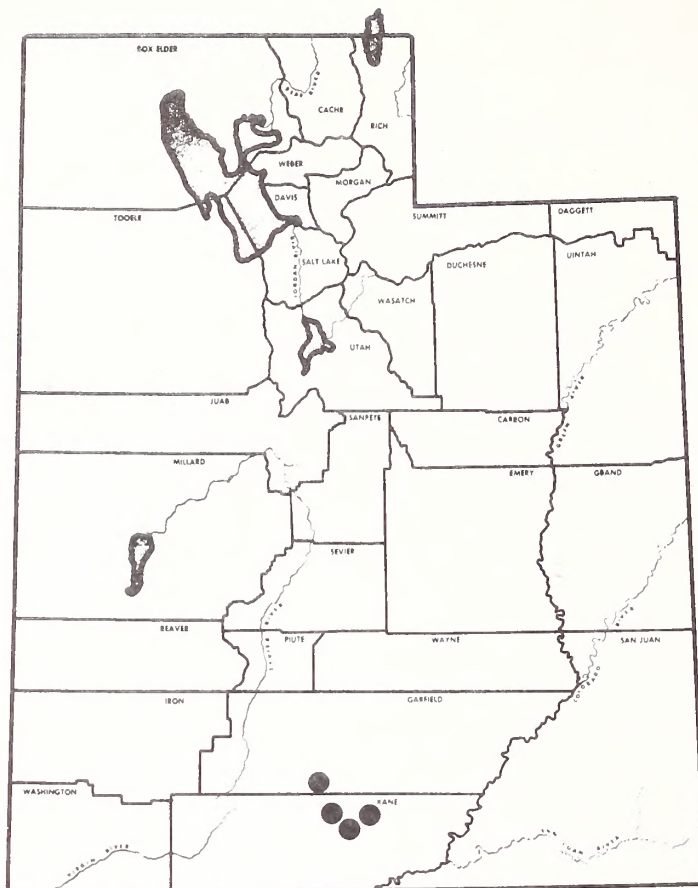
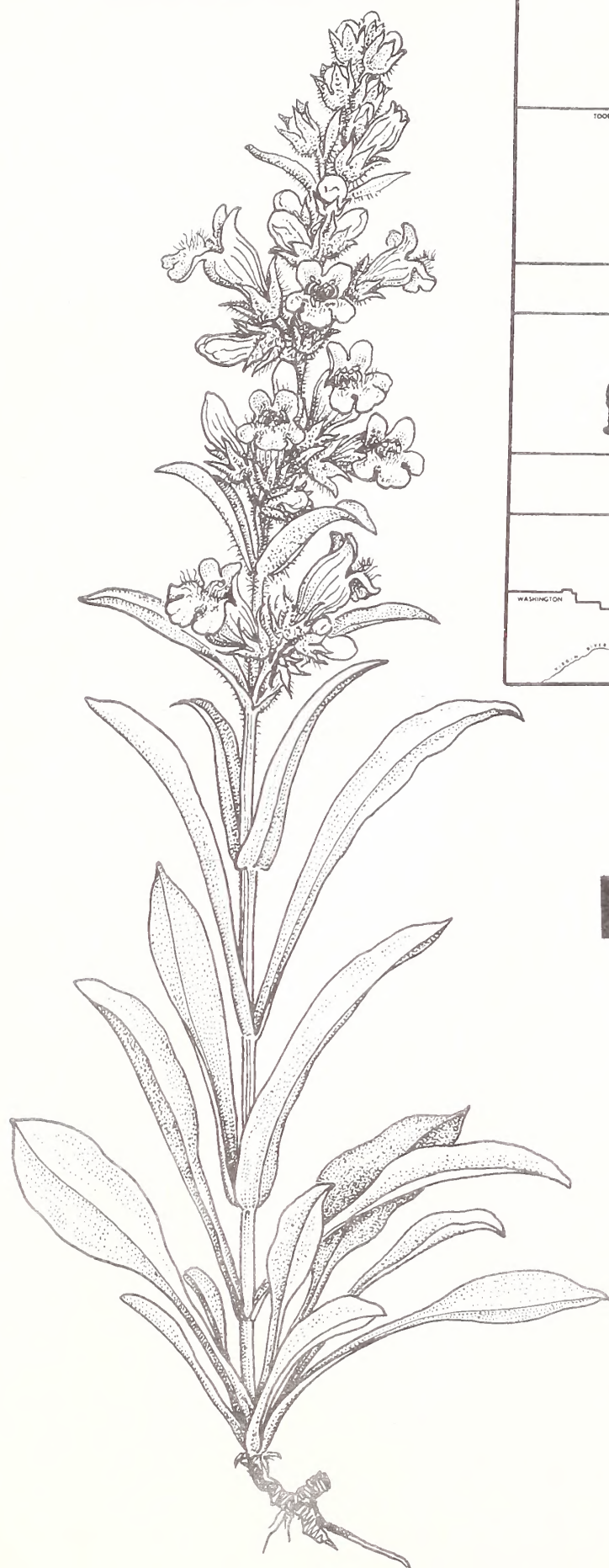
EXISTING OR POTENTIAL THREATS: Oil, gas, and coal drill holes are present throughout this region and the entire range of this species is traversed by roads.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State

REMARKS: The entire area occupied by P. atwoodii is moderately to heavily grazed.

RECOMMENDATIONS: The species should be avoided by future surface impacts.

Penstemon atwoodii



1 cm

SCIENTIFIC NAME: Penstemon bracteatus Keck

FAMILY: Scrophulariaceae

CITATION: Leaf1. W. Bot. 1: 82. 1934.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Red Canyon beardtongue

KNOWN DISTRIBUTION: Garfield Co., Utah

HABITAT: Pink Limestone Member of the Wasatch Formation in stone slides, gravelly soil; mixed ponderosa pine and pinyon pine communities

ELEVATION: 7800 to 8000 feet (2379 to 2440 m)

DESCRIPTION: Perennial herb, 6-18 cm tall; rhizomes slender from a stout caudex; stems few, erect, terminal; herbage glabrous and glaucous throughout; basal leaves with an oval or rotund blade and petiole as long, 2-3.5 cm long, cauline leaves lanceolate to lanceolate-linear, 1-1.8 cm long, equally spaced up the stem; bracts of the inflorescence conspicuous, cordate amplexicaul; inflorescence about one-half the stem height; corolla purple-blue, 12-20 mm long, glabrous; anther sacs widely divaricate.

TAXONOMIC PROBLEMS: This beardtongue may be distinguished from its near relative, P. acuminatus, by the smaller flowers, ovate basal leaves, slender stem, and geographical distribution.

EXISTING OR POTENTIAL THREATS: Recreation and the increased pressure of tourists on the habitat of this plant are threats.

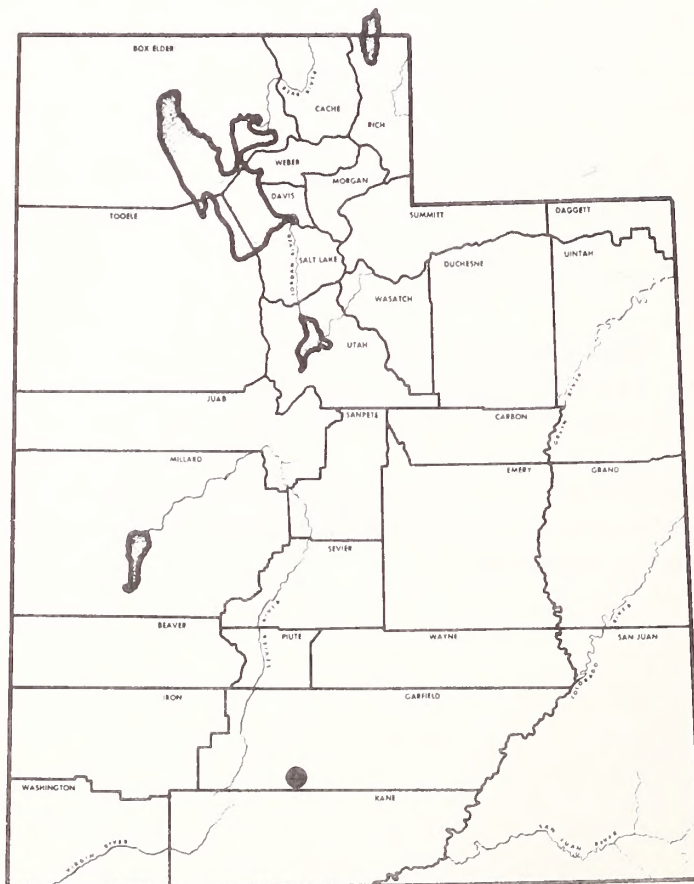
LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service; National Park Service

REMARKS: The nearest relative to P. bracteatus is in northern Nevada while less related species are geographically closer. Thus it becomes important in distribution and speciation studies within the genus.

RECOMMENDATIONS: A detailed survey of this area is needed to determine location and acquire population data of this beardtongue and other endemic species.



Penstemon bracteatus



SCIENTIFIC NAME: Penstemon compactus (Keck) Crosswhite

FAMILY: Scrophulariaceae

CITATION: Amer. Midl. Naturalist 77: 6. 1967.

SYNONYMS: Penstemon cyananthus Hook. ssp. compactus Keck (Amer. Midl. Naturalist 23: 615. 1940.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Cache beardtongue

KNOWN DISTRIBUTION: Cache Co., Utah

HABITAT: Rocky outcrops in spruce-fir and aspen communities

ELEVATION: 6700 to 9500 feet (2044 to 2898 m)

DESCRIPTION: Perennial from a woody caudex; stems 10-32 cm tall, glabrous; basal leaves 4-9 cm long, 3-18 mm wide, oblanceolate to spatulate or obovate, tapering to a slender petiole; cauline leaves 3-7 cm long, becoming sessile above, lanceolate to oblong; inflorescence of 1-3 whorls, compact; calyx 6-11 mm long, more or less glandular, the small glands sessile or substipitate, the lobes lanceolate to ovate, long attenuate, the margin membranous and moderately erose; corolla 20-26 mm long, 7-10 mm wide, glabrous; staminode subglabrous or barbellate at the apex.

TAXONOMIC PROBLEMS: None

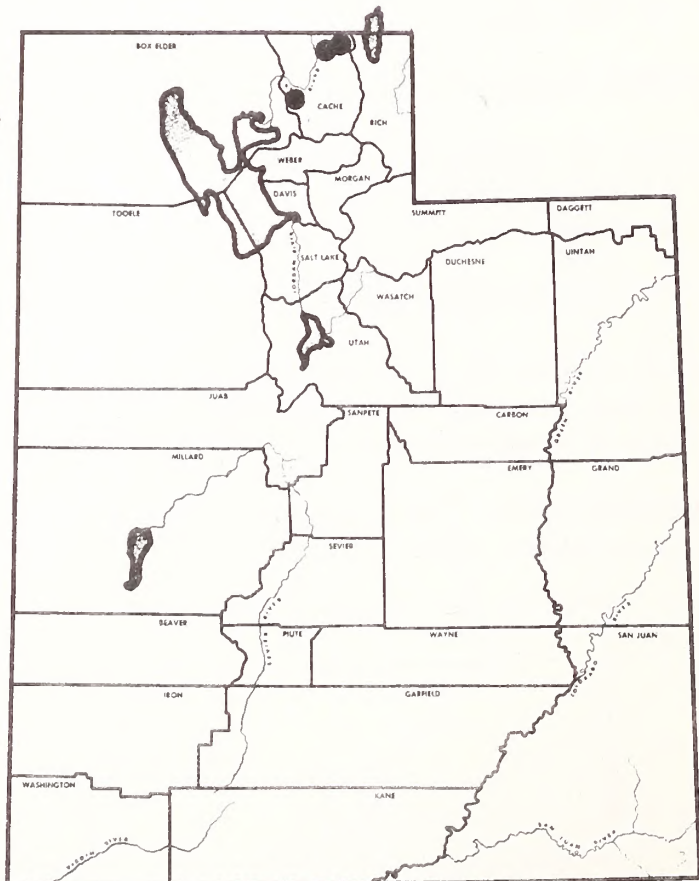
EXISTING OR POTENTIAL THREATS: Recreation (increased visitor use), potential timber harvest, and potential industrial expansion are threats to this species.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service; private

REMARKS: This is a beautiful beardtongue, which in its most compact phase seems unusual in presenting such a display of large flowers for so short a plant.

RECOMMENDATIONS: This species requires study to delimit its total area and population size.

Penstemon compactus



SCIENTIFIC NAME: Penstemon concinnus Keck

FAMILY: Scrophulariaceae

CITATION: Amer. Midl. Naturalist 23: 608. 1940.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Tunnel Springs beardtongue

KNOWN DISTRIBUTION: Beaver, Millard cos., Utah

HABITAT: Sevy Dolomite Formation, gravelly soil; pinyon-juniper woodland

ELEVATION: 5500 to 7500 feet (1678 to 2288 m)

DESCRIPTION: Stems arising from a woody caudex, simple erect, 5-20 cm tall, more or less puberulent; leaves glabrous, scabrous, more or less involute, entire to sparsely denticulate, linear oblanceolate, spatulate-obtuse, 2.5-6 cm long, 4-6 cm wide, petiolate; inflorescence compact to elongate, glandular-pubescent; calyx 5-7 mm long, lobes lanceolate acuminate; glandular pilose corolla 8-11 mm long, 3 mm wide, pale blue purple, glandular pubescent, pubescent anther sacs broadly spreading, opening flat; staminode exerted, long bearded white; capsule glabrous.

TAXONOMIC PROBLEMS: P. concinnus is related to P. miser, but differs in its shorter corolla, white bearded staminode, glabrous leaves and pale green herbage, which doesn't darken when it dries.

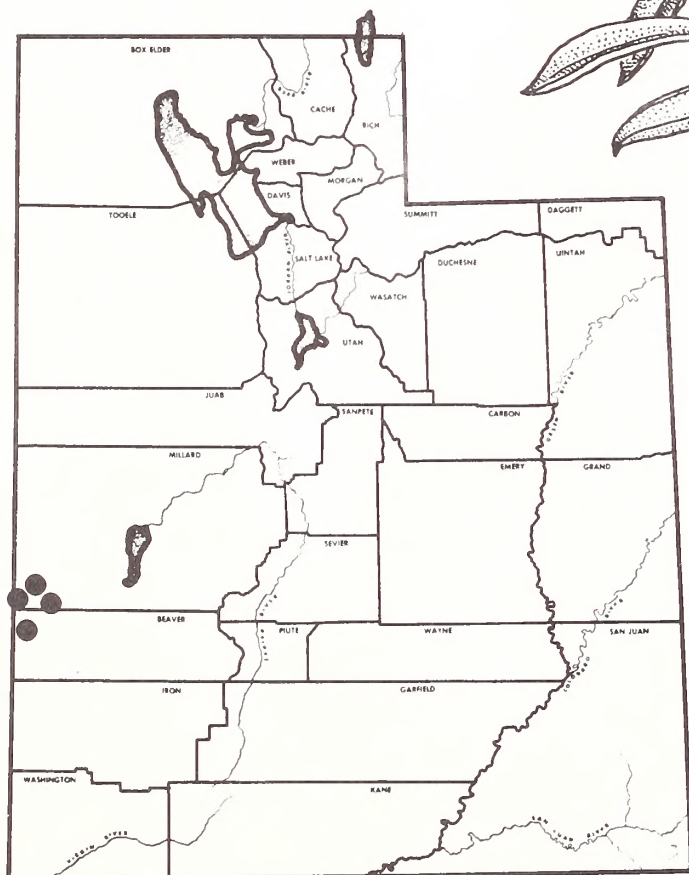
EXISTING OR POTENTIAL THREATS: Mineral exploration, changes in land use, and industrial development are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; U. S. Forest Service; Utah State

REMARKS: The Tunnel Springs beardtongue often occurs with several other narrow endemics on the Sevy Dolomite Formation.

RECOMMENDATIONS: This species should be regarded as threatened.

Penstemon concinnus



SCIENTIFIC NAME: Penstemon garrettii Pennell

FAMILY: Scrophulariaceae

CITATION: Contr. U. S. Natl. Herb. 20: 353. 1920.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Garrett beardtongue

KNOWN DISTRIBUTION: Duchesne and Wasatch cos., Utah

HABITAT: Travertine rocks, submontane zone in the crevices of the rocks; exposed places near hot pots.

ELEVATION: 5700 to 5900 feet (1739 to 1800 m)

DESCRIPTION: Stems several, 20-40 cm tall (sparsely glandular-puberulent in the inflorescence), from a branched caudex, dull or slightly glaucous; leaves dull green, glaucous, obscurely veined, glabrous; basal leaves lanceolate, 6-7 cm long, narrowed into petiole-like bases about $\frac{1}{2}$ their length; cauline leaves narrowly lanceolate clasping, 6-10 cm long, 0.7-0.9 mm wide, inflorescence narrow, less than one-half the height of the plants; sepals 4-6 mm long, obscurely veined; corolla about 20 mm long; tube narrow, throat rounded, glabrous, blue; anthers pubescent with long white hairs, opening the distal apex throughout, sterile filament enlarged distally; fruit a capsule.

TAXONOMIC PROBLEMS: None

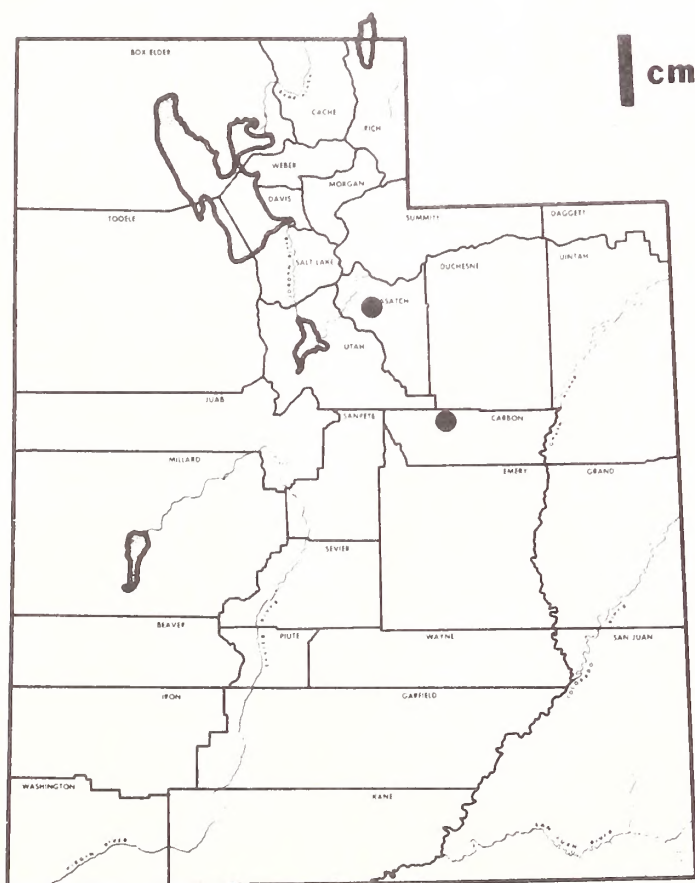
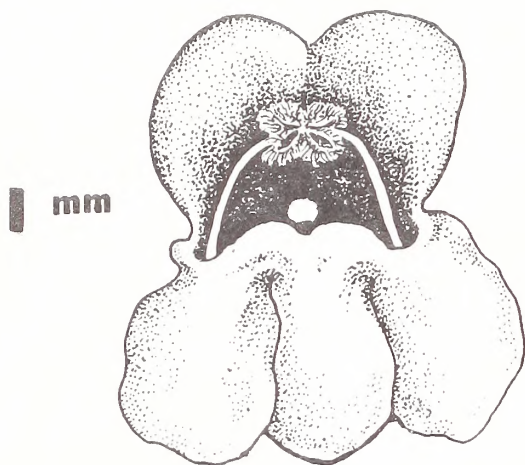
EXISTING OR POTENTIAL THREATS: Highway construction, changes in land use, and resource exploitation are threats to this species.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service; private

REMARKS: The Garrett beardtongue is an obscure entity, with a range marked by disjunctions.

RECOMMENDATIONS: Until further information is available, this plant should be regarded as threatened.

Penstemon garrettii



SCIENTIFIC NAME: Penstemon grahamii Keck

FAMILY: Scrophulariaceae

CITATION: Ann. Carnegie Mus. 26: 331. 1937.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Proposed as endangered, Federal Register, 16 June 1976. Recommended as endangered by S. L. Welsh, 1978.

COMMON NAME: Graham beardtongue

KNOWN DISTRIBUTION: Uintah Co., Utah

HABITAT: Talus slopes, gravelly sandy soil over shaley sandstone; pinyon-juniper community

ELEVATION: 6400 feet (1370 m)

DESCRIPTION: Stems few (1-3) erect, from a woody caudex with fibrous roots, retrorsely pubescent; leaves entire, glaucous or glabrous, veins prominent, basal lance ovate to oval, blade, 2-3.5 cm long, 1.5-2 cm wide, clasping or subcordate at the base, gradually reduced upward; inflorescence glandular pubescent, 3-5 flowered; calyx 7-9 mm long, gland tipped hairs, lobes lanceolate; corolla 30-35 mm long, 11-15 mm broad at the throat, light to deep lavender, lower tip striped red-purple, sparsely white villous on lobes of lower lip; throat widely gaping; anthers exerted; staminodes densely bearded, bright orange; fruit a capsule, glabrous.

TAXONOMIC PROBLEMS: P. grahamii is related to P. miser, a species known from Nevada westward, but differs in its smaller flowers.

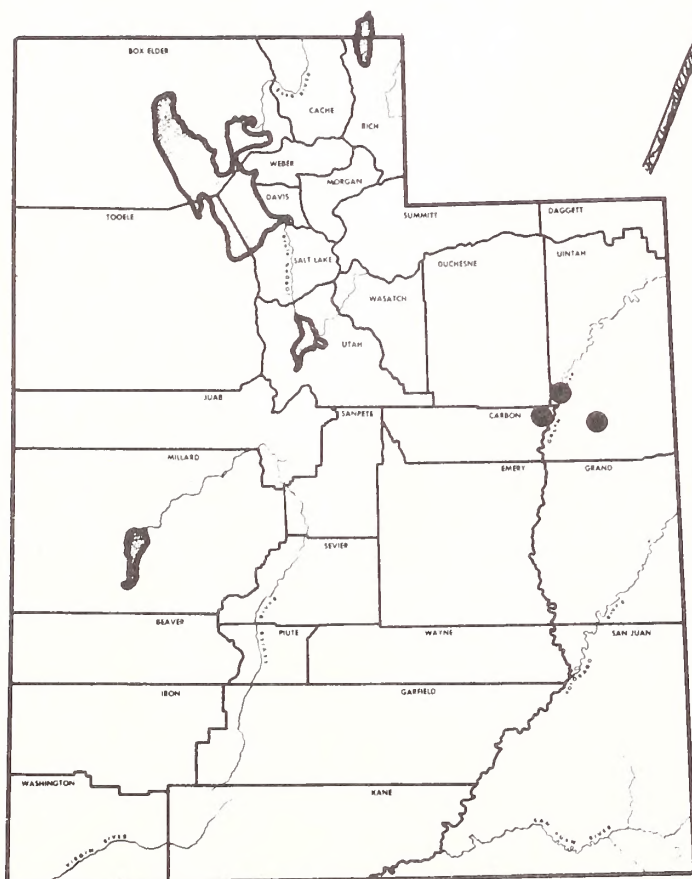
EXISTING OR POTENTIAL THREATS: Industrial development and mineral exploitation are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Utah State; Bureau of Land Management; private

REMARKS: This beardtongue has very large flowers for such a small plant (1-2 dm tall).

RECOMMENDATIONS: The plant should be regarded as endangered.

Penstemon grahamii



SCIENTIFIC NAME: Penstemon humilis Nutt. var. obtusifolius (Pennell)
Reveal

FAMILY: Scrophulariaceae

CITATION: Great Basin Naturalist 35: 369. 1975.

SYNONYMS: Penstemon obtusifolius Pennell (Contr. U. S. Natl. Herb. 20:
370. 1920.)

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Springdale beardtongue

KNOWN DISTRIBUTION: Washington Co., Utah

HABITAT: Navajo Sandstone Formation; ponderosa pine, oak, service berry,
and juniper community

ELEVATION: 5000 to 7300 feet (1525 to 2227 m)

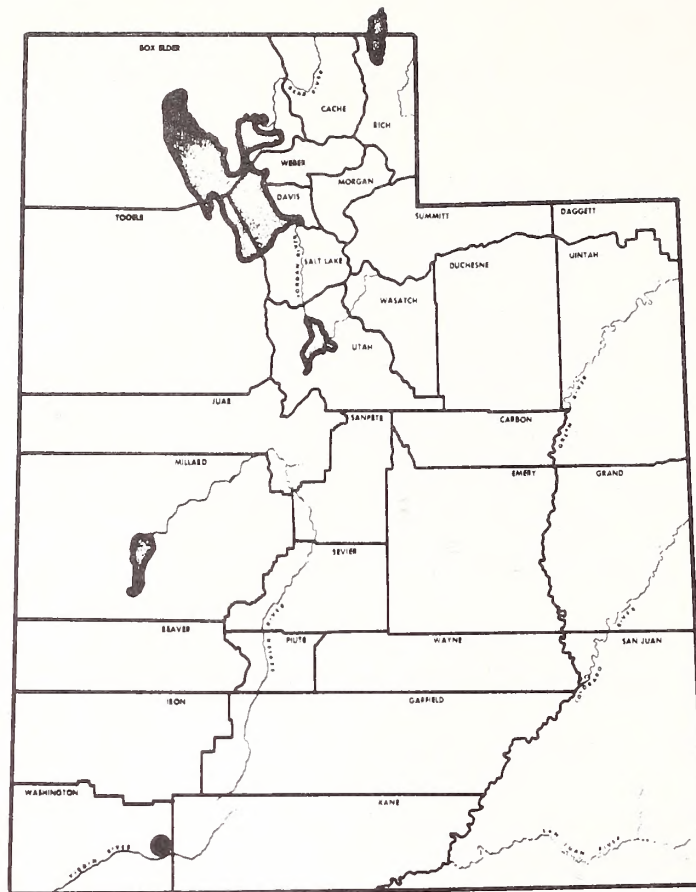
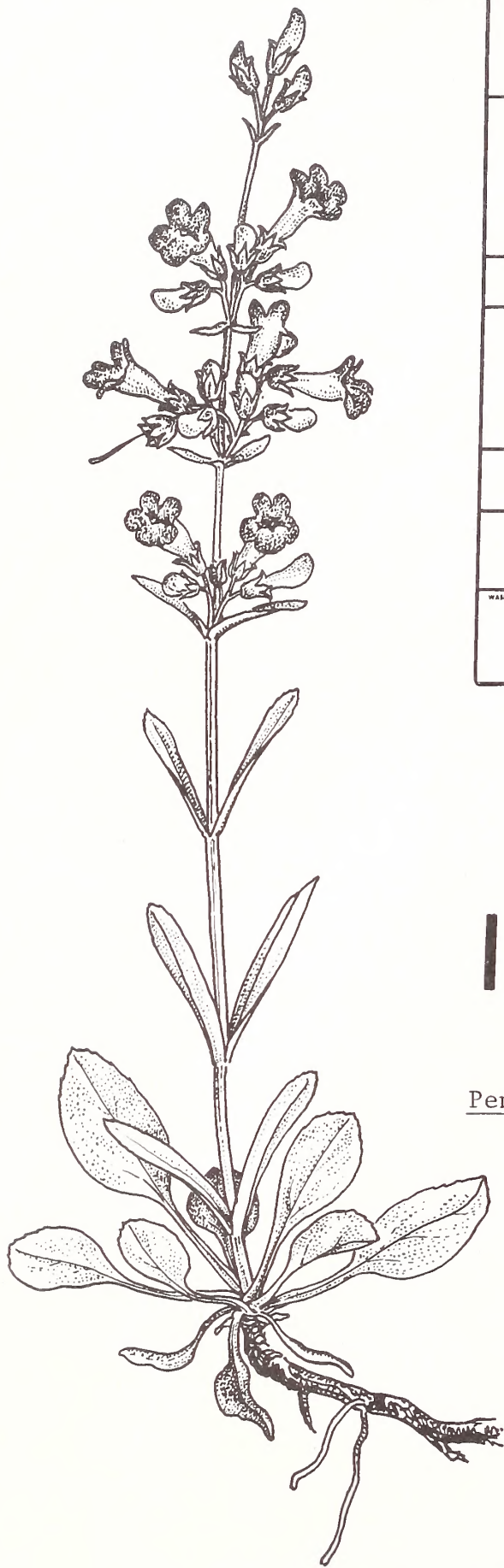
DESCRIPTION: Perennial, stems slender, erect, 15-20 cm tall from a branched caudex, slender, below puberulent with reflexed hairs, above glandular pubescent; leaves pale green, dull, glabrous, basal ones broadly oval, sometimes serrulate, 2-6 cm long, 5-21 mm wide, abruptly narrowed to a slightly margined petiole about equal to the blade, cauline ones oblong, oblong-lanceolate, clasping, entire or serrulate, 0.8-2.3 cm long, 0.2-0.7 cm wide; inflorescence narrow, not secund, 1/3 to 1/2 the height of the plant; sepals 3-5 mm long, lanceolate, glandular-pubescent; corolla 10-12 mm long, throat yellow, somewhat inflated, glandular pubescent, lobes blue-violet; anther sac widely divaricate, opening throughout, glabrous; staminode bearded with yellow barbellate hairs.

TAXONOMIC PROBLEMS: P. humilis var. humilis can be separated from the Springdale beardtongue by the latter's smaller flowers and serrulate leaf margins, at least on the cauline leaves.

LAND OWNERSHIP/MANAGEMENT: National Park Service; Bureau of Land Management; private

REMARKS: This species appears to be present only on the Navajo Sandstone in the vicinity of Zion National Park.

RECOMMENDATIONS: The total extent of this species needs to be determined and a monitoring program established.



1 cm

Penstemon humilis var. obtusifolius

SCIENTIFIC NAME: Penstemon nanus Keck

FAMILY: Scrophulariaceae

CITATION: Amer. Midl. Naturalist 23: 607. 1940.

SYNONYMS: None

STATUS: Reviewed as endangered, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Low beardtongue

KNOWN DISTRIBUTION: Beaver, Juab, Millard, and Tooele cos., Utah

HABITAT: Sevy Dolomite Formation, calcareous gravel; dry exposure in an Artemisia, pinyon, and mixed desert shrub community.

ELEVATION: 5500 to 6400 feet (1678 to 1952 m)

DESCRIPTION: Low, arising from a woody caudex; stems 3-15 cm tall, retrorsely pubescent; leaves entire, narrowly oblanceolate to spatulate, 18-35 mm long, 3-7 mm wide, obtuse; inflorescence compact, 1-3 cm long, glandular pubescent; calyx 5-6 mm long, lobes narrowly oblong, glandular hairy; corolla 12-16 mm long, 3.5-5 mm wide, blue-violet, pale beneath, pale more or less hairy; anther sacs are divergent almost parallel, opening flat; staminode densely hairy, yellow.

TAXONOMIC PROBLEMS: P. nanus is related to P. pumilus, but differs in having white anther sacs and a densely orange-bearded staminode.

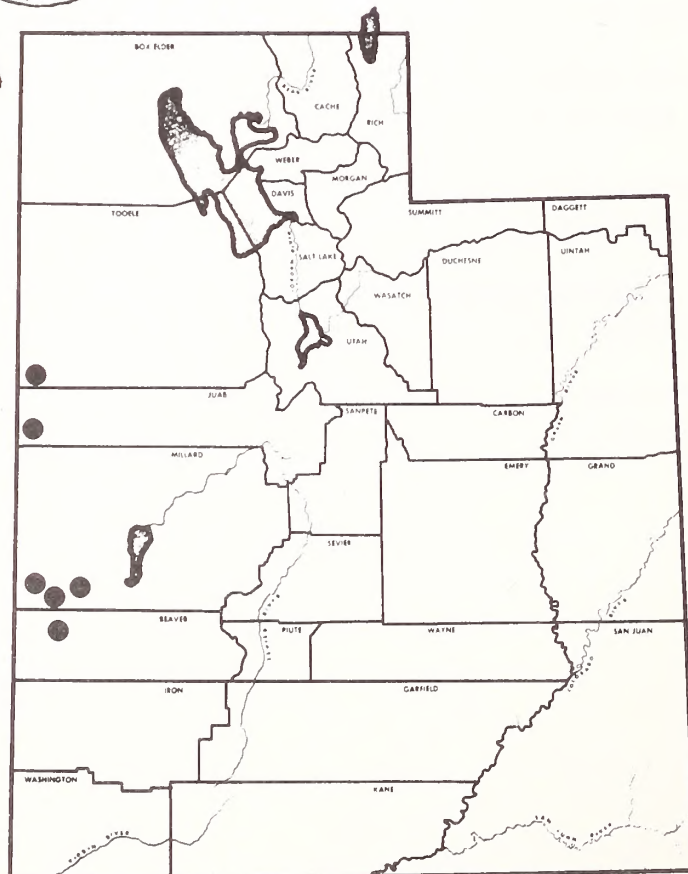
EXISTING OR POTENTIAL THREATS: Mineral exploration, changes in land use, and industrial development are potential threats to this species.

LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State; U. S. Forest Service.

REMARKS: The low beardtongue occurs mainly on alluvial fans, talus slopes and rocky outcrops in arid sites where other plants are few.

RECOMMENDATIONS: Although rather widely distributed, this plant is still vulnerable.

Penstemon nanus



SCIENTIFIC NAME: Penstemon parvus Pennell

FAMILY: Scrophulariaceae

CITATION: Contr. U. S. Natl. Herb. 20: 345. 1920.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Small beardtongue

KNOWN DISTRIBUTION: Garfield, Piute, and Wayne cos., Utah

HABITAT: Tertiary volcanic gravels, sandy gravelly loam; sagebrush and grassland flats community

ELEVATION: 8200 to 11,500 feet (2500 to 3500 m)

DESCRIPTION: Perennial; stems several, 5-10 cm tall, from a relatively long slender caudex, puberulent, slender, not glaucous or glandular; leaves green, obscurely veined, puberulent, basal ones oblanceolate to obovate, 2-2.5 cm long, 4-5 mm wide, cauline ones smaller becoming much reduced in the inflorescence; inflorescence narrow; sepals 4 mm long, ovate, not veined, sparsely glandular-puberulent; corolla 20 mm long, tube narrow, throat inflated, corolla externally glandular-puberulent, glabrous within, blue; anther sacs widely divaricate, opening throughout, glabrous.

TAXONOMIC PROBLEMS: None

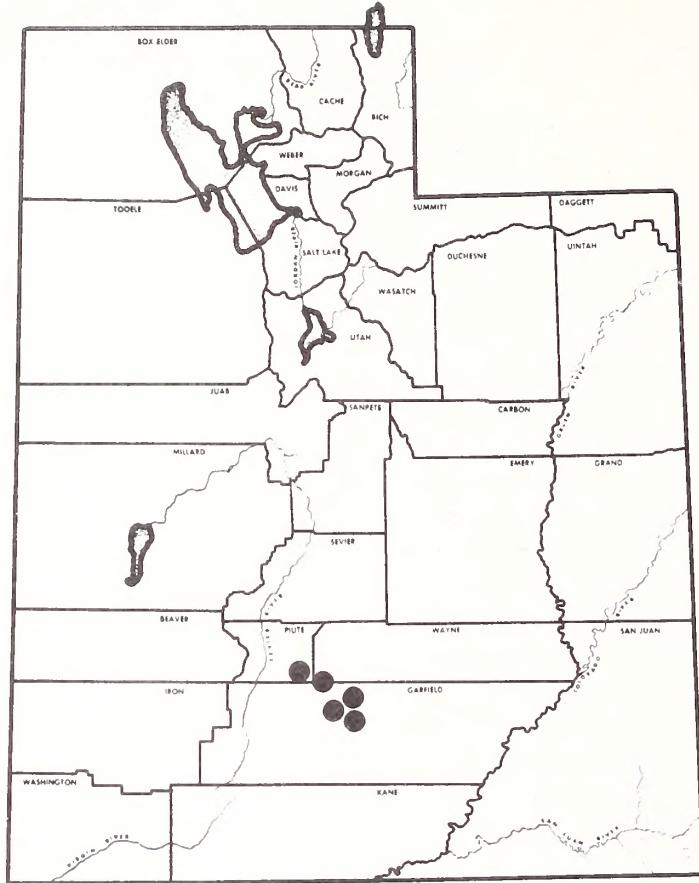
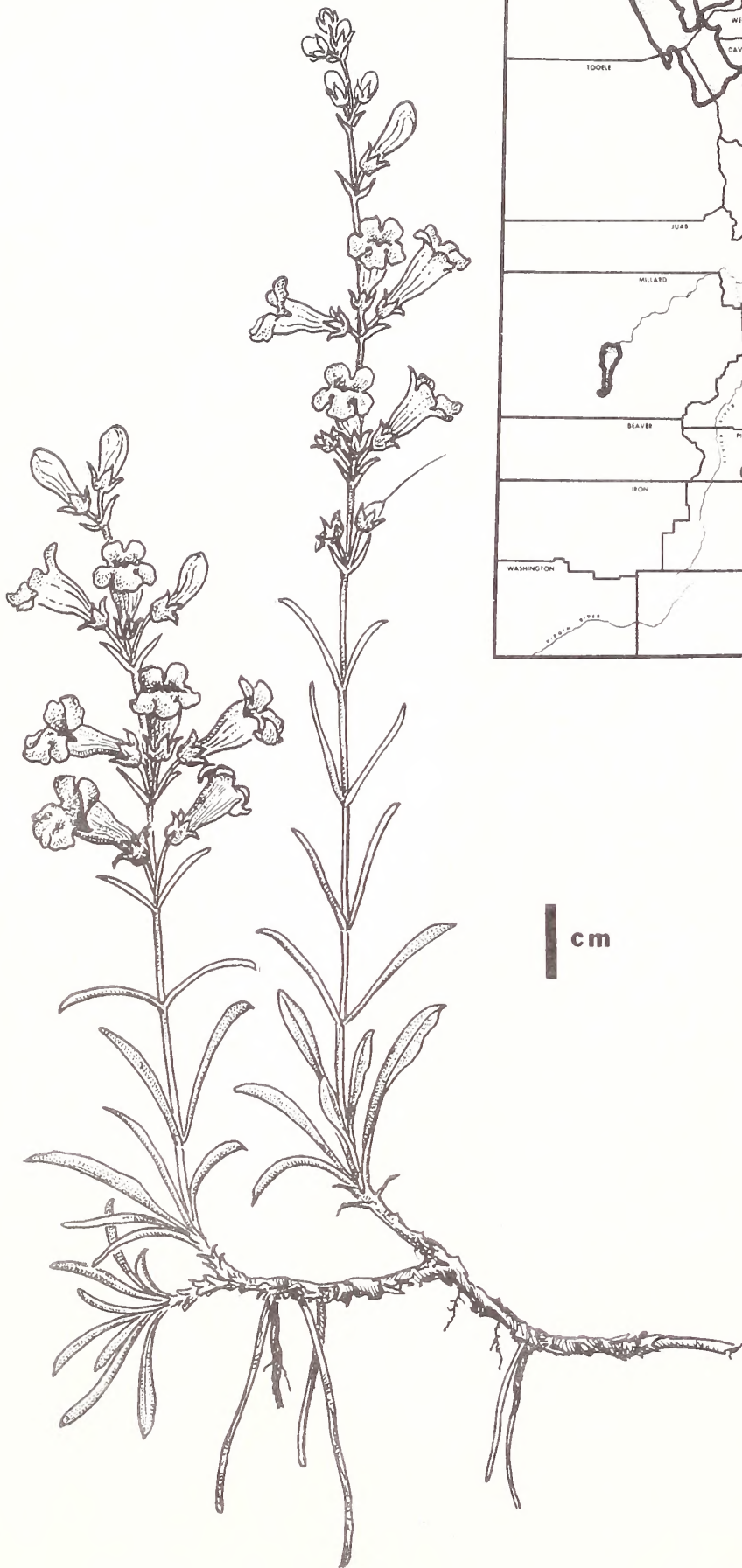
EXISTING OR POTENTIAL THREATS: Excessive stocking rates, competition between domestic livestock and antelope, and potential reclamation projects are threats to this species.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service; Utah State; Bureau of Land Management

REMARKS: A survey of the populations should be undertaken and a monitoring program should be established.

RECOMMENDATIONS: This species should be regarded as threatened.

Penstemon parvus



SCIENTIFIC NAME: Penstemon tidestromii Pennell

FAMILY: Scrophulariaceae

CITATION: Contr. U. S. Natl. Herb. 20: 379. 1920.

SYNONYMS: None

STATUS: Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Tidestrom beardtongue

KNOWN DISTRIBUTION: Sanpete and Juab cos., Utah

HABITAT: Desert shrub, sagebrush, snowberry, and juniper communities on a variety of substrates

ELEVATION: 5600 to 8200 feet (1708 to 2501 m)

DESCRIPTION: Perennial herbs; stems one to several, 19-50 cm tall from a caudex, puberulent glabrate above; leaves pale dull green, puberulent, basal ones oblanceolate, obtuse to retuse, 4-12 cm long, 4-15 mm wide, narrowed to petioles, cauline becoming sessile and oblong to lanceolate; inflorescence secund, with several clusters; sepals 3-5 mm long, ovate acute to acuminate, scarious margined, glabrous to glabrate; corolla 15-20 mm long, glabrous, blue-violet; anther sacs divaricate, opening from distal apex, glabrous, sterile filament bearded.

TAXONOMIC PROBLEMS: P. wardii and P. laevis are closely related to P. tidestromii.

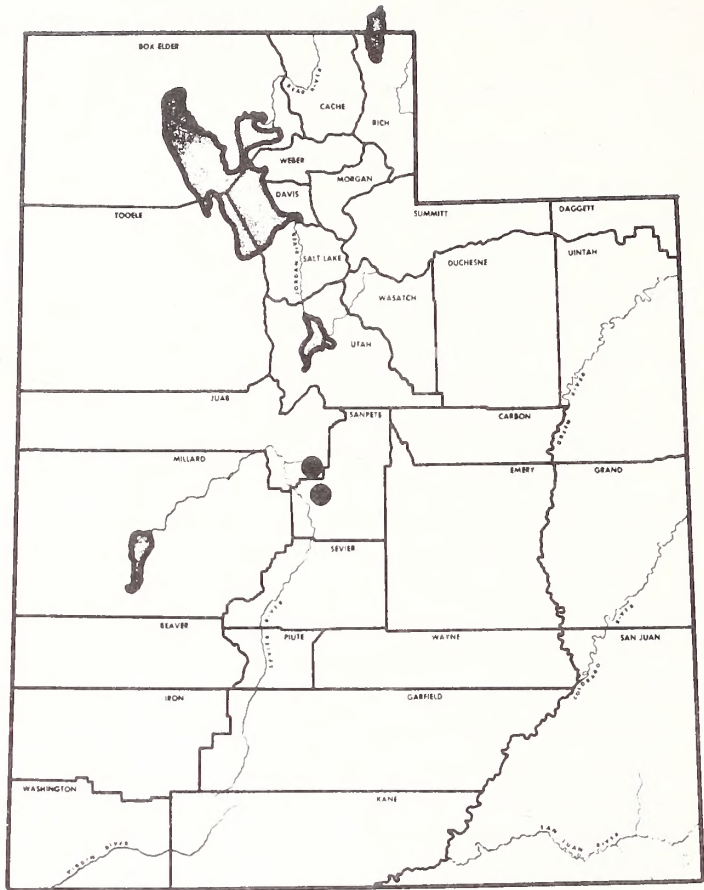
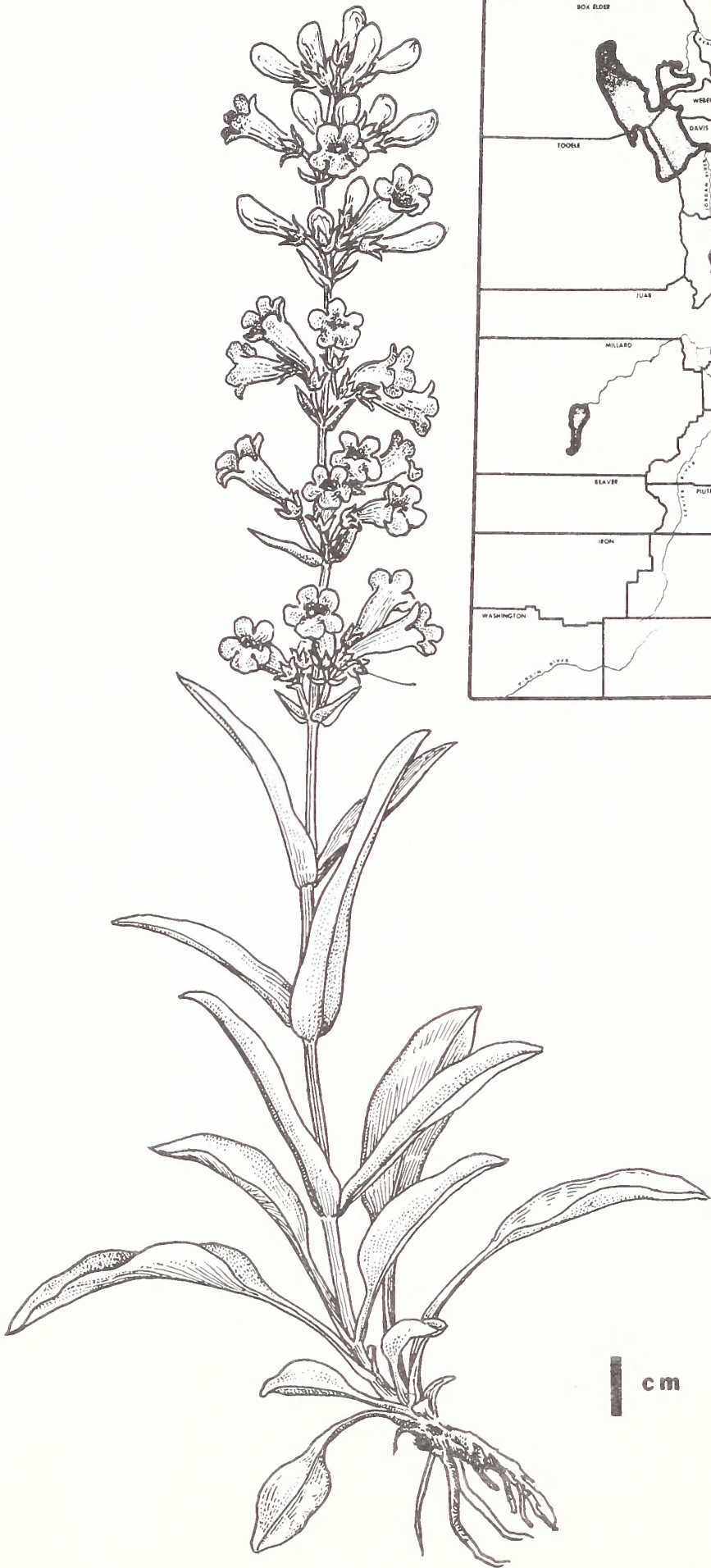
EXISTING OR POTENTIAL THREATS: Reclamation of indigenous vegetation is a threat to this species.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service; Bureau of Land Management; private; Utah State

REMARKS: The population of the Tidestrom beardtongue have been impacted by grazing animals and by management procedures.

RECOMMENDATIONS: The species should be monitored carefully and determination of reproductive strategies made.

Penstemon tidestromii



SCIENTIFIC NAME: Penstemon uintahensis Pennell

FAMILY: Scrophulariaceae

CITATION: Contr. U. S. Natl. Herb. 20: 350. 1920.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Uinta beardtongue

KNOWN DISTRIBUTION: Daggett, Duchesne, Summit and Uintah cos., Utah

HABITAT: Moraine slopes, limestone areas, gravelly loam; alpine tundra and spruce communities

ELEVATION: 10,000 to 12,200 feet (3111 to 3721 m)

DESCRIPTION: Plant perennial; stems several, 10-20 cm tall from a short caudex, slender, glabrous, sparsely glandular in the inflorescence, not glaucous; leaves green, glabrous, basal leaves with narrow oblanceolate blades, 3-5 cm long, 0.6-0.8 cm wide, narrowed into petiole-like bases, stem leaves smaller; inflorescence narrow, strongly secund, 1/3 the height of the plant; sepals 5-6 mm long, broadly ovate; corolla 18-20 mm long, throat inflated and rounded ventrally, corolla externally sparsely glandular puberulent, glabrous within, blue; anther sacs widely divaricate, opening throughout.

TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Increased visitor use, precipitation enhancement experiments and timber harvests are threats to this plant.

LAND OWNERSHIP/MANAGEMENT: U. S. Forest Service; private

REMARKS: This is a handsome, large-flowered, low plant of alpine sites.

RECOMMENDATIONS: Until the extent and nature of the populations becomes known, it seems best to regard this Uinta mountain endemic as threatened.

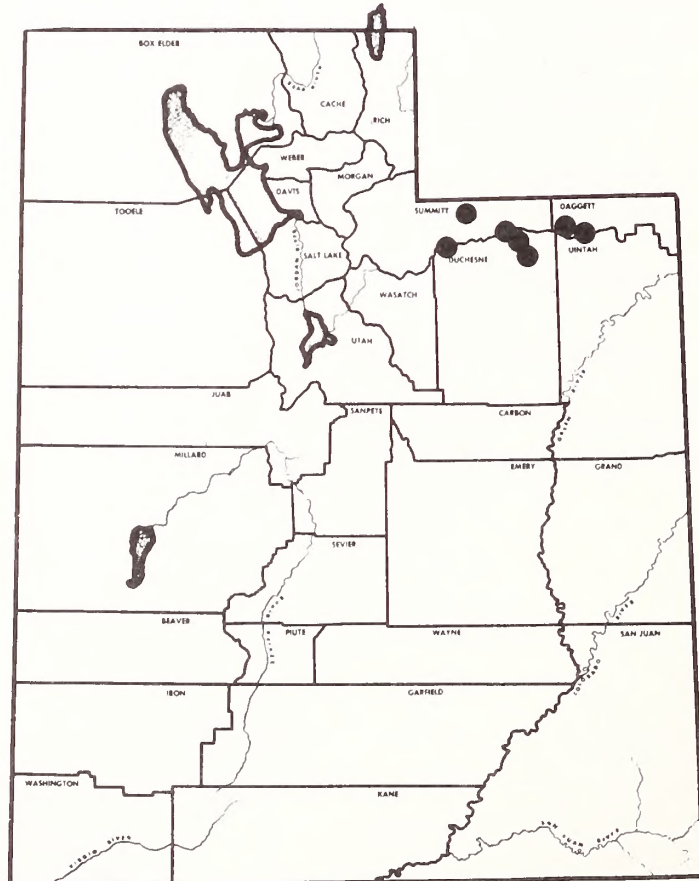
Penstemon uintahensis



cm



mm



SCIENTIFIC NAME: Penstemon wardii A. Gray

FAMILY: Scrophulariaceae

CITATION: Proc. Amer. Acad. Arts 12: 82. 1876.

SYNONYMS: None

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Ward beardtongue

KNOWN DISTRIBUTION: Sanpete and Sevier cos., Utah

HABITAT: Arapien Shale, Bald Knoll and Colton formations, clay shale hills; pinyon-juniper and greasewood communities

ELEVATION: 5250 to 6400 feet (1600 to 1952 m)

DESCRIPTION: Perennial, caulescent herbs; stem 1-3 dm high, densely canescent with minute rough hairs; leaves opposite, entire, thick, oblong to oblong-lanceolate, puberulent, the basal ones 3-9.8 cm long, 4-23 mm wide, tapering to a petiole, the cauline elliptic to oblong or oblanceolate; inflorescence secund, in few to several clusters; flowers blue-purple, 21-35 mm long; anthers glabrous, opening only at the tips, usually horseshoe-shaped; staminodium glabrous; capsules glabrous.

TAXONOMIC PROBLEMS: None

EXISTING OR POTENTIAL THREATS: Gypsum and salt mining, roads, and garbage dumping are threats to the habitat of this plant.

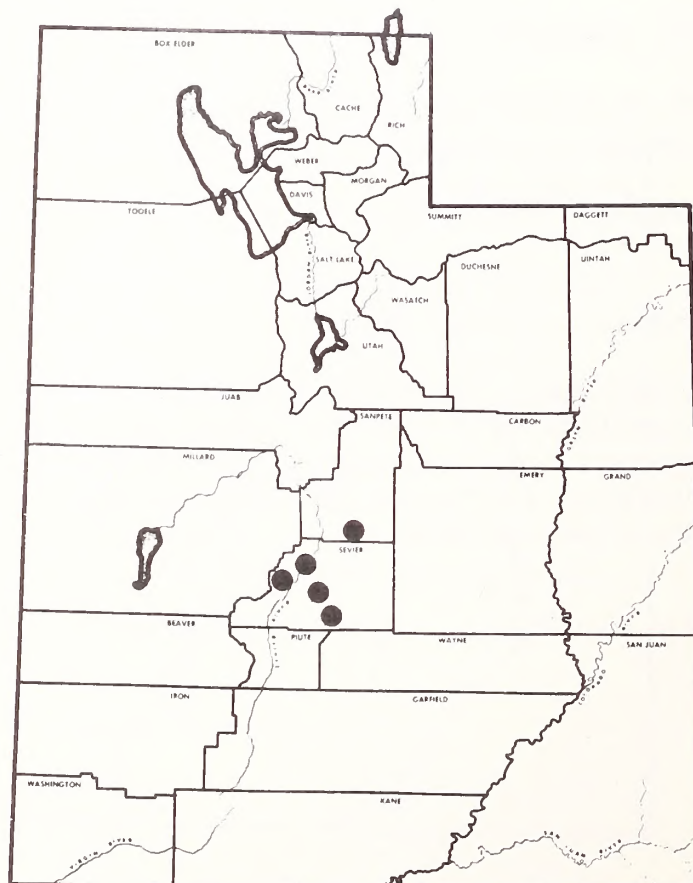
LAND OWNERSHIP/MANAGEMENT: Bureau of Land Management; Utah State; private

REMARKS: The Ward beardtongue provides some degree of stability to very marginal soil and therefore it is ecologically important.

RECOMMENDATIONS: The total extent and number of populations should be determined by a careful survey of the area; the best habitat and population determined and the land purchased if on private land. Otherwise all future development which requires surface disturbance should be excluded.



Penstemon wardii



SCIENTIFIC NAME: Viola purpurea Kellogg var. charlestonensis (Baker and Clausen) Welsh and Reveal

FAMILY: Violaceae

CITATION: Great Basin Naturalist 35: 371. 1975.

SYNONYMS: Viola charlestonensis Baker and Clausen (in Clokey). (Madroño 8: 58. 1945.)

STATUS: Reviewed as threatened, Federal Register, 1 July 1975. Recommended as threatened by S. L. Welsh, 1978.

COMMON NAME: Limestone violet

KNOWN DISTRIBUTION: Washington Co., Utah

HABITAT: Limestone outcrops and cliffs, humus soil; yellow pine forest and mixed mountain shrub community

ELEVATION: 6850 to 9500 feet (2074 to 2898 m)

DESCRIPTION: Plant perennial; stems partially subterranean, from a branched caudex, densely crowded above with leaves and flowers; leaves thick, ashy above, purplish beneath, pubescence of short appressed and retorse hairs on both sides; basal leaves few, rounded, broadly ovate, 1-2.5 cm long, cauline leaves narrower, ovate; stipules of basal leaves scarious, adnate; stipules of cauline leaves grayish, lanceolate, entire; sepals linear lanceolate, 3.5-4 mm long, hirsute; corolla 12-17 mm across, face yellow, back of upper petals purplish, upper petals broadly ovate, lower petals spatulate; capsule 8 mm wide, densely puberulent.

TAXONOMIC PROBLEMS: V. purpurea var. integrifolia is similar to var. charlestonensis but the appressed white hairs on the leaf surface and veins and the entire margin separate it from the former.

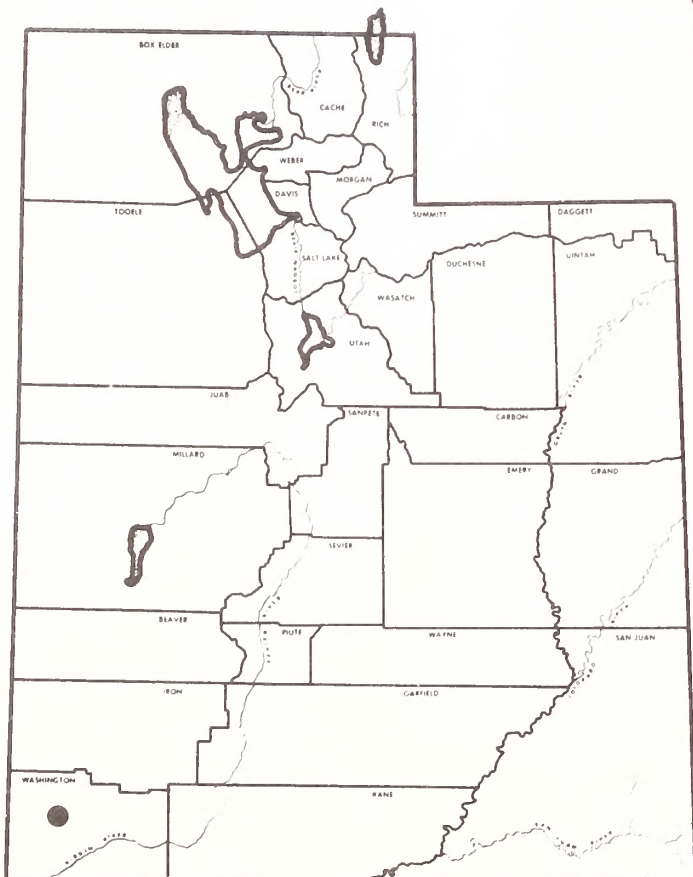
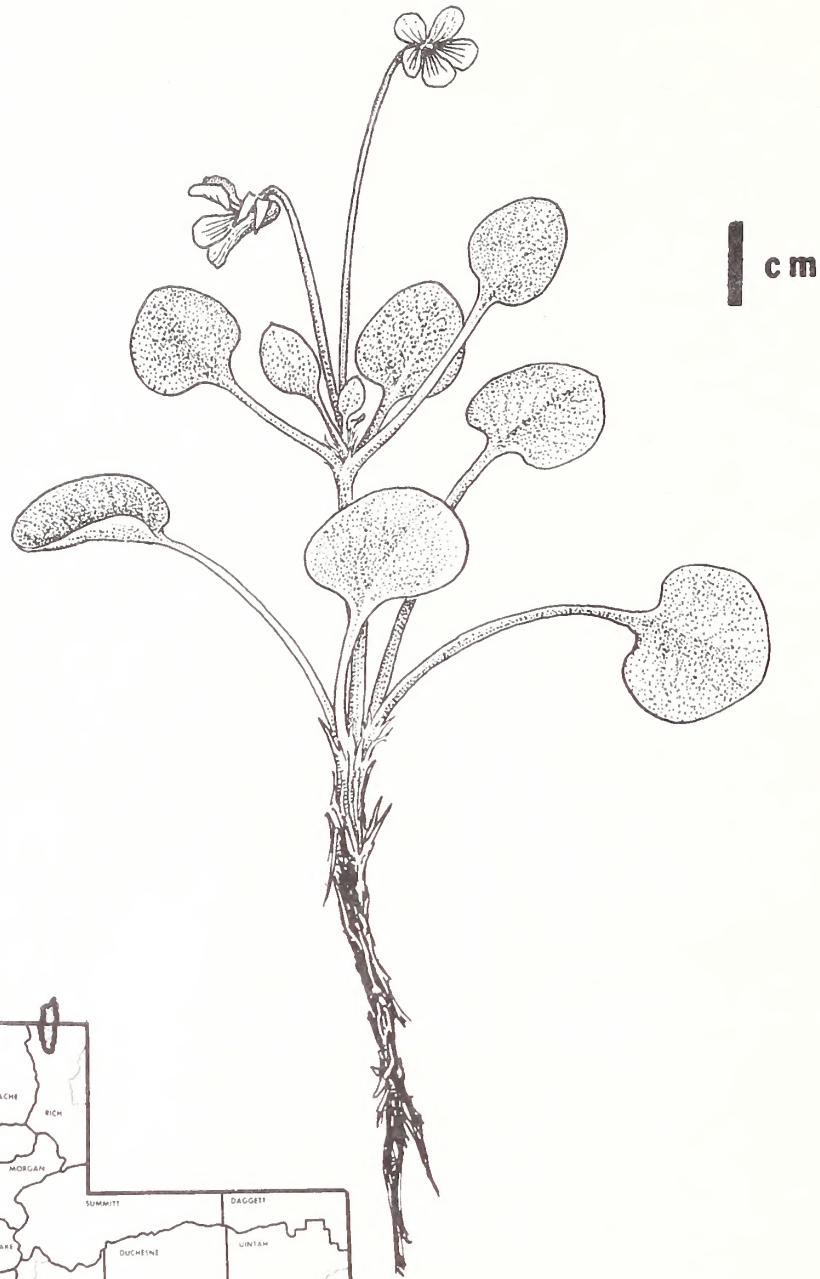
EXISTING OR POTENTIAL THREATS: Mineral exploration, and potential industrial development are threats to this plant.

LAND OWNERSHIP/MANAGEMENT: National Park Service

REMARKS: The total range of this species in Utah is poorly known. Further information is necessary before final disposition of this variety can be made.

RECOMMENDATIONS: The plant should be regarded as threatened.

Viola purpurea var. charlestonensis



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Appendix I

DELISTING RECOMMENDATIONS: Proposed and reviewed Utah plants recommended
for delisting

Taxon

Arabis shockleyi
Arenaria stenomeres
Astragalus convallarius
 var. *finitimus*
Astragalus desperatus
 var. *conspetus*
Astragalus ensiformis
Astragalus lentiginosus
 var. *chartaceus*
Astragalus loanus
Astragalus lutosus
Astragalus minthorniae
 var. *gracilor*
Astragalus nidularius
Astragalus oophorus
 var. *lonchocalyx*
Astragalus pardalinus
Astragalus serpens
Astragalus wetherillii
Camissonia megalantha
Camissonia parryi
Castilleja scabrida
Corydalis caseana
 var. *caseana*
Cryptantha breviflora
Cryptantha semiglabra
Cryptantha stricta

Taxon

Cymopterus basalticus
Cymopterus newberryi
Dalea thompsonae
Erigeron garrettii
Erigeron sionis
Eriogonum pelinophilum
Eriogonum viridulum
Frasera gypsicola
Geranium marginale
Gilia mcvickerae
Haplopappus scopulorum
Hermidium alipes
 var. *pallidum*
Lewisia maguirei
Lomatium minimum
Lupinus marianus
Lygodesmia grandiflora
 var. *stricta*
Machaeranthera grindelioides
 var. *depressa*
Nama retrorsum
Opuntia whipplei
 var. *multigeniculata*
Oxytropis obnapiformis
Parrya nudicaulis

Taxon (contd.)

Parthenium ligulatum
Penstemon abietinus
Penstemon caespitosus
 var. suffruticosus
Penstemon decurvus
Penstemon leiophyllus
Peteria thompsoniae
Phacelia constancei
Phacelia demissa
 var. heterotricha
Phacelia raphaelensis
Phlox grahamii
Phlox jonesii
Physaria grahamii
Primula specuicola
Puccinellia parishii
Sclerocactus spinosior

